100 USED BOATS FOR SALE IN THIS ISSUE

RUDDER®

BOATING'S FIRST MAGAZINE

AUGUST 1975 $1.00
06418

LIVING ABOARD: HAPPINESS OR HASSLE?

JOHN D. MACDONALD'S REAL SEAGOING WORLD

SET TWIN JIBS DOWNWIND: IT'S EASY

CRUISING THE ABACOS: A TRAWLER UPDATE

BEFORE YOU BUY A STERN DRIVE, TEST DRIVE THIS AD!

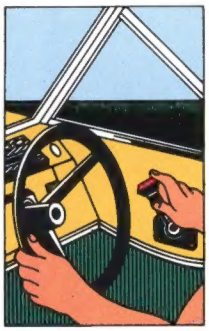
Ideally, you should test drive the boat you've chosen with an OMC Stern Drive, and MerCruiser or Volvo.

But, let's face it, such a test isn't easy to arrange. That's unfortunate (for you!) because OMC's superior combination of performance features really show up in an actual comparison.

So, compare OMC with the others right on this page. It's the next best thing to actually driving the boats.

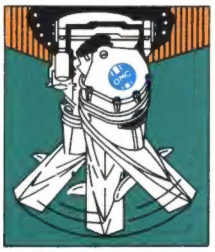
Tru-Course Steering

This will spoil you. Engineers call OMC's optional Tru-Course Steering "a non-reversing system that isolates steering loads from the wheel." In other words—when you turn the wheel, the wheel doesn't fight back. You don't have to wrestle it to hold course or while trimming. In fact, you can take your hands off the wheel in a turn or straight ahead—at trolling speeds, or at any speed.



Better Maneuvering

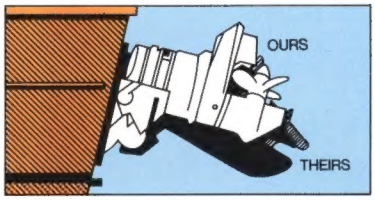
You're in for a surprise the first time you put an OMC into a tight maneuver. Because the OMC outdrive swings 90°... *50% more than the others!* In fact, an OMC powered boat can literally turn inside the other two. Just look at the diagram at the right. Isn't that the extra margin you want for maneuvering into a tight slip?



at identical speeds—OMC turned in 16'1", MerCruiser in 34'10" and Volvo in 38'8"

The 75° Hi-Tilt

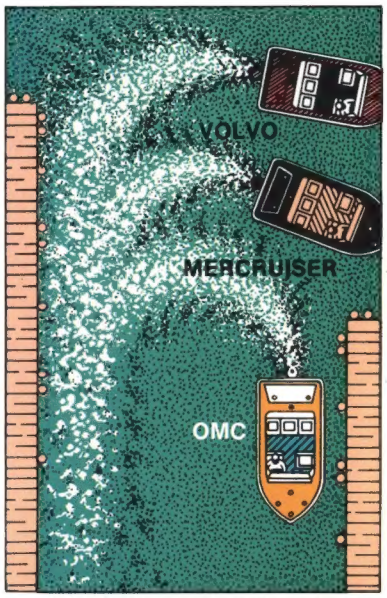
Only the OMC outdrive tilts up 75°—that's 25% higher than the MerCruiser or Volvo! A big advantage everytime you launch your boat from a trailer, beach it, or want to change a prop without getting into the water, or hauling the boat out of the water.



The Uni-Mount Difference

If you put your hand on the transom of the boat with an OMC Stern Drive and then do the same with MerCruiser or Volvo, you'll notice how much more the others vibrate. You can feel and hear the difference. That's because the others bolt the outdrive directly to the transom.

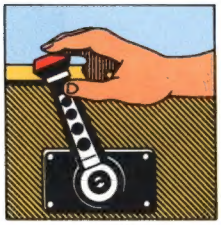
But OMC uses the Uni-Mount system. The outdrive and engine are an integral unit, cushion mounted to the hull stringers. The outdrive doesn't touch any part of the transom. That's how we dampen gear train and propeller vibration and noise.



For More Info., Write No. 23 on Product Service Card

Exclusive Power Shift

When you shift the other stern drives, you do it with muscle. When you shift ours, you do it with power. Just move the control as smoothly and easily as the automatic shift lever in your automobile. And it takes only a 22° movement of OMC's shift lever to go into forward or reverse. The others take 40° to 45°—which means slower response.



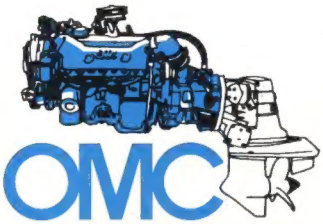
Check The OMC Test Charts

Want even more proof? Ask your dealer to show you the carefully documented OMC V-8 speed and fuel consumption tests.* Check OMC's winning V-8 fuel economy compared to competitors' engines of similar horsepower.

Now you're ready to buy your boat, with an OMC Stern Drive. There are fourteen models to choose from, including five top-performing V-8's.

*Verified by independent marine test laboratory.

FROM THE MAKERS OF JOHNSON & EVINRUDE



OMC Stern Drive

A DIVISION OF OUTBOARD MARINE CORPORATION
3145 CENTRAL AVENUE, WAUKEGAN, ILLINOIS 60085

Chances are you've run your engine a lot this season.
Chances are it's time for an oil change.
Chances are the engine manufacturer recommends a change at this time.
Now.

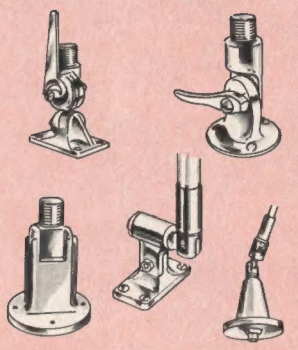
Chances are, after many running hours at high temperatures and under heavy loads, your engine's oil is dirty, distressed, or depleted.

So change it now and protect your engine with Texaco's Havoline, the motor oil so many leading boat and engine builders have recommended for years. Havoline has a balanced-additive formula that helps protect engines against rust, oil thickening, sludge and varnish deposits, bearing and piston-ring wear. Resists thin out even at peak engine temperatures! Change to Havoline Motor Oil now—at Texaco marinas in all 50 states.

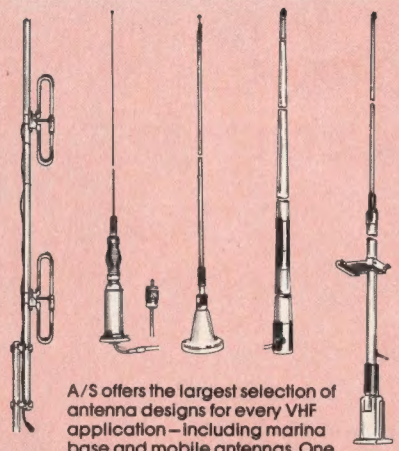
Trust Texaco for products you can trust. TEXACO

In 90% of so-called "radio failures" the radio works fine. Doesn't this suggest the importance of installing the most reliable possible antenna system?

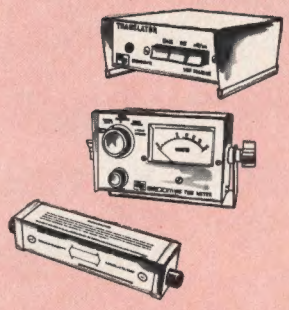
Nine out of ten marine communications system failures are the result of antenna problems. Solving them costs you time and money. Antennas that work in theory do not necessarily stand up to the tough pounding of a marine installation. That's why we're as much environmental specialists as antenna people. For example: we developed and produce our own double-woven Armorweave® fiber glass, because nothing available was tough enough, or would stay white enough long enough. Just one of the special ways in which A/S helps you concentrate on better performance, not worse headaches.



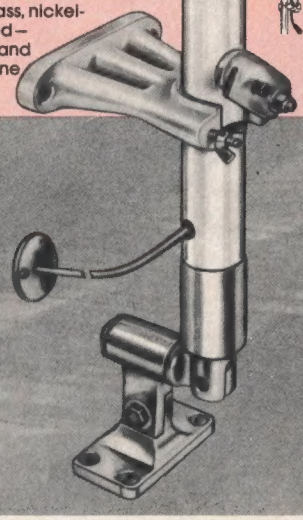
21 different mounting and hardware options. All metal parts solid brass, nickel-chrome plated—designed for and tested in marine installations.



A/S offers the largest selection of antenna designs for every VHF application—including marina base and mobile antennas. One source—with stocks readily available when you need them.



Our ASCOM test and communications accessories are unique devices designed specifically for marine use. They help keep you on the air and bring you an extra margin of safety.



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first magazine for boatmen

RUDDER

AUGUST 1975 VOL. 91 • NO. 8

The Elbow Cay Lighthouse stands guard as Meridian 48 eases by on its cruise of the Abacos. Stanley Rosenfeld photo.

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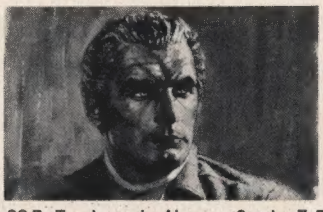

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soundings

A MITE MORE

Sir: In reference to the letter *Small Packages* in the April, 1975 "Soundings," I would like to request equal time for sailors. There is an organization which promotes model yacht design, building and racing. The American Model Yachting Association, A.M.Y.A., sanctions at present 40 clubs in the U.S. and Canada. There are about 900 members with over 1100 yachts registered.

The yachts are split among 12 classes, some of which are one design, and some which are open design. The open-design yachts can be and often are home designed and built. There are also kits available for most classes.

To clarify matters, these are all true sailboats. No means of propulsion other than the natural action of wind and water is allowed. Control of the rudder is via a servo operated by a radio receiver-transmitter. The sail sheets, on the other hand, are controlled by a winch (which is motorized) controlled by another servo. A nearly infinite variety of sail trim and adjustment is available.

Model yachting and racing is a fantastic hobby-sport, which can be enjoyed by young and old, with all the advantages (to sailors) of sail over power. It can also be a many varied, albeit compressed, training ground for racing skippers. For further information on the A.M.Y.A., write to Eugene Salika, 3917 Sunnyside Avenue, Brookfield, Ill. 60513.

Robert R. Doane Jr.
Richmond, Va.

HELP WANTED

Sir: I have recently purchased a 34-foot Colonial Cabin Cruiser for which I am trying to obtain information relative to the specifications and operating characteristics for the hull and engines. I have tried to reach the original manufacturer, Colonial Boatworks, Inc., Millville, N.J., without success. Inasmuch as I believe that they have gone out of business, any information as to where I could obtain an owner's manual, etc., would be gratefully appreciated.

The boat is an express cruiser, hull No. 34 EC251, model 59. It is equipped with two Graymarine gas engines, model No 8V 170.

G. R. Faunce
46 Clematis Ave.
Weymouth, Mass. 02188

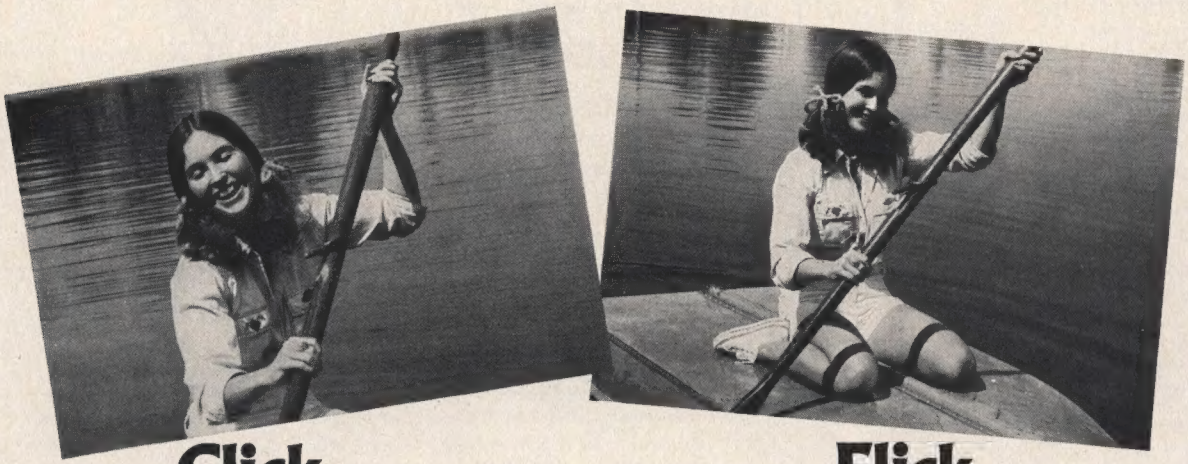
STUDY IN GUATEMALA

Sir: I've received a number of inquiries regarding the language school in Guatemala which I mentioned in my February "Blue Water Sailor" column. Those who want more information on the school can write to Proyecto Linguistico F.M., A.P. 237, Antigua, Guatemala, C.A.

This is an in-depth Spanish language school where the student lives with a native family during his course.

Tom Colvin
Miles, Va.

Address letters for this department to Soundings, RUDDER, *1515 Broadway, New York, New York 10036.*



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The whole story.

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engines ask RUDDER

by Edward H. Nabb

q *What can you tell me about my second-hand Kermath Sea Cub inboard?*
a The Sea Cub, built by Kermath Manufacturing Co., 5882 Commonwealth Ave., Detroit, Mich. 48233, delivers 25 hp at 3400 rpm; has 2⅝" bore, 3" stroke and 65-cubic-inch piston displacement; weighs 285 pounds; has 6V electrics; uses Joes gears and Stromberg carburetor and hasn't been in production for several years.

q *I have tried everywhere for information about Aquabug outboards—can you help?*
a I presume you are one of the dozens of readers who have called or written about the gas/electric-combination outboard which hit the market about two years ago in a "mail only" campaign. They were sold and marketed by Seaborne Systems, Inc., with addresses at 4413 Austin Blvd., Island Park, N.Y. 11558 and later 100 Merrick Road, Rockville Center, N.Y. 11570. It went out of business sometime during 1974 and the only source of parts seems to be O & R Engines, 3340 Emory St., Los Angeles, Cal. 90023, which bought all the spares. I am told the motors were built by Olson & Rice, Roper Corp., Bradley, Ill., but at this writing I have not been able to check that out. The new "Aquabug" is Aqua Bug International, Box 61, Lawrence, N.Y. 11559 (phone No. 516-536-8217), which has no connection to the old company—except to purchase the trade name—which maybe it shouldn't! The new company markets two of the smallest two-cycle gas engines available. They are built in Japan to company specs and are now available. *Don't* call the new company for parts for the old engines—all they can do is commiserate with you.

q *Was there ever a Franklin marine engine?*
a Around the end of 1969, Franklin Engine Co., Syracuse, N.Y., a subsidiary of Allied Aero Industries, Inc., announced a line of aluminum I/O engines. A 4-cylinder and a 6 were announced, and there were some interesting innovations which were to be included under patents held by an ex-Chevrolet engineer. I never saw the completed engine, have no indication that they were ever

marketed and presume the project just didn't get off the ground.

q *I have a Homelite outboard at least ten years old, and I have had difficulty installing the crankshaft oil seal even though we are using Crosley installing tools. What am I doing wrong—do I have the wrong seal?*
a It is impossible to guess from this distance what your problem may be. One good possibility is that in 1962 Homelite lengthened the taper on the flywheel end of the crankshaft. This changed the end taper by about 5 degrees, just enough to prevent the Crosley tool from seating and usually cutting the seal lip.

q *Who makes that kill switch which turns the ignition key off?*
a Everyone is making a kill switch! The idea has been mandatory for racing boats in Europe for about 15 years (actually all racing boats all over the world are supposed to be so equipped), but until lately they have been hard to find. We used old telephone jacks and in some cases even tied a line around the ignition leads on spark plugs and the other end to the driver. Tempo Products Co., 6200 Cochran Rd., Cleveland, Ohio 44139 (phone No. 216-248-1450) advertises a "turn key" kill switch and so does OMC Controls, available through your local Evinrude or Johnson dealer.

q *I have found an old Lathrop G-35 and would like to know the builder, the ignition and stock carburetor.*
a The G-35 goes back to about 1966 when Lathrop was owned by Grumman Allied Industries. The basic block was from Standard Triumph of Coventry, England, electrics by Lucas and the updraft carburetor was Zenith. The engines were primarily for auxiliary sailboat use. Some were approved for lifeboat use and these may have alterations I am not familiar with.

Readers are invited to mail questions to this department. Address Edward H. Nabb, RUDDER, 1515 Broadway, New York, N.Y. 10036.

BREAD UPON THE WATERS

by Janet Groene

BREAD PUDDING ON THE WATERS

Boating in this steamy summer weather, you probably find that fresh bread goes unfresh more quickly than expected. Here are two stovetop desserts to hasten a loaf along. A third recipe can be made atop the stove or in an electric skillet.

Butterscotch Bread Pudding

3 slices raisin bread.
1 c. firmly packed brown sugar
1 c. evaporated milk
½ t. vanilla
2 t. butter
3 eggs
dash salt

Trim crusts from bread, spread with butter and cut into small squares. Spread the brown sugar in a buttered double boiler top and sprinkle with bread cubes. Beat eggs, milk, salt and vanilla together and pour over bread without stirring, and place over boiling water for about an hour or until pudding tests done as for custard. (Watch that water does not boil dry in bottom!) Custard will form on top and a sauce under it, so spoon into dishes with sauce on top.

Chocolate Bread Pudding

1 square baking chocolate
2 c. bread cubes
¼ c. sugar
1 t. vanilla
1½ c. milk
1 egg
dash salt
8 large marshmallows

Melt chocolate in top of double boiler over steaming water. Add milk, bread, beaten egg, sugar and salt and cook, stirring slowly until thick. Take off heat and stir in vanilla and cut-up marshmallows. Spoon warm into serving dishes and top with whipped or plain cream if desired.

Rosy Pear Dumplings

3 fresh pears or 6 canned pear halves
1-lb. can whole cranberry sauce
1 cup white cake mix
½ c. milk
1 T. sugar

If using electric skillet, set at 240 degrees, or put regular skillet on low-medium flame. Mash cranberry sauce into skillet and lay peeled, cored pears in with hollows up. If using canned pears, heat thoroughly, or if using fresh pears, cook 5 to 10 minutes until tender. Mix milk and sugar with cake mix to smooth batter, then spoon atop pear halves. Cover and cook 15 minutes and serve while warm.

Readers are invited to mail information or suggestions appropriate to the "Bread Upon The Waters" department. Address Janet Groene, RUDDER, 1515 Broadway, New York, N.Y. 10036.

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State_____ (zip)_____
Yacht name:_____ Length_____
Make_____ Year_____
( ) power ( ) sail

RD8

October 2-5 (TRADE/PRESS DAY, OCTOBER 1)

NORTH ATLANTIC BOAT SHOW

YACHT HAVEN WEST, STAMFORD, CONNECTICUT

October 9-12

UNITED STATES POWERBOAT SHOW

CITY DOCK & HARBOR, ANNAPOLIS, MARYLAND

October 16-19 (TRADE/PRESS DAY, OCTOBER 15)

UNITED STATES SAILBOAT SHOW

CITY DOCK & HARBOR, ANNAPOLIS, MARYLAND

November 6-9

GULF COAST SAIL & POWERBOAT SHOW

WATERGATE YACHTING CENTER,
CLEAR LAKE/GALVESTON BAY, TEXAS

November 20-23

GOLD COAST IN-THE-WATER BOAT SHOW

MARINA BAY, FT. LAUDERDALE, FLORIDA

THE WORLD'S LARGEST IN-THE-WATER BOAT SHOW

And the first sail and powerboat show of the year!

Over 500 new '76 models on display, many for the first time . . . more than 280 boats afloat . . . hundreds more on shore . . . plus over 200 marine product exhibits in the North Atlantic Coliseum.

Yacht Haven West is easy to reach — take Exit 7 or 9 off the Conn. Turnpike (I-95) and follow signs to parking lots near the show grounds. Free shuttle bus service.

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Trade/Press Day
Wednesday, October 1, 10 a.m. to 6 p.m.

Public Days
Thursday, October 2 to Sunday, October 5, 10 a.m. to 7 p.m.

ADMISSION
Adults — $4.00, tax included . . . Children (age 12 and under) — $2.00, tax included.

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Take the 2nd Annapolis Exit off Rt. 50 and follow signs to free parking areas. Continuous shuttle bus service.

SHOW HOURS

Public days
Thursday, October 9 to Saturday, October 11, 10 a.m. to 7 p.m.; Sun., October 12, 10 a.m. to 6 p.m.

ADMISSION
Adults — $4.25, tax included . . . Childrer (age 12 and under) — $2.25, tax included.

THE WORLD'S LARGEST SAILBOAT SHOW

The 6th annual U.S. Sailboat Show will be the largest ever . . . the entire world of sail . . . an international showcase of new sailboats and equipment.

See over 400 new racing, cruising and one-design sailboats . . . more than 180 displayed in-the-water (including 80 foreign boats) . . . plus the latest developments in sailing equipment and accessories.

Take the second Annapolis Exit off Route 50 and follow signs to the Navy-Marine Corps Memorial Stadium on Rowe Blvd. Continuous shuttle bus service.

SHOW HOURS

Trade/Press Day
Wednesday, October 15, 10 a.m. to 6 p.m.

Public Days
Thursday, October 16 to Saturday, October 18, 10 a.m. to 9 p.m.
Sunday, October 19, 10 a.m. to 6 p.m.

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Even bigger and better than last year, the 2nd annual Gulf Coast Sail & Powerboat Show will feature a spectacular fleet of new 1976 sail & powerboats displayed in-the-water and ashore . . . plus scores of marine products and accessories for both power and sail.

Watergate Yachting Center is located on the south shore of Clear Lake, 35 min. from Houston. From north or south, take Gulf Freeway/I-95 to the League City/FM 518 Exit. Drive east on FM 518 and FM 2094 for 5.7 miles to Watergate Yachting Center. Follow signs to parking areas . . . continuous shuttle bus service.

SHOW HOURS

Public Days
Thursday, November 6 to Sunday, November 9, 11 a.m. to 6 p.m. daily.

ADMISSION
Adults — $4.00, tax included . . . Children (age 12 and under) — $2.00, tax included.

FLORIDA'S LARGEST IN-THE-WATER BOAT SHOW

At last — a fall, in-the-water boat show comes to Ft. Lauderdale — the boating capital of the world and the heart of Florida's Gold Coast. See the cream of next year's new models — both power and sail — on display in-the-water and on shore . . . plus the latest boating products and accessories.

Marina Bay is located on St. Rd. 84 at the intersection of I-95. From either the Florida Turnpike or I-95, take the Ft. Lauderdale/St. Rd. 84 Exit and follow the signs to nearby parking areas. Continuous shuttle bus service.

SHOW HOURS

Public Days
Thursday, November 20 to Sunday, November 23, 12 noon to 6 p.m. daily.

ADMISSION
Adults — $4.00, tax included . . . Children (age 12 and under) — $2.00, tax included.

SAVE MONEY and time — Use this coupon to buy advance sale tickets at a special reduced price and avoid ticket lines at the show. (Sorry, ticket orders cannot be filled later than one week prior to the show.) *BOAT SHOES FOR BOARDING, PLEASE.*

Check show(s) and indicate number of tickets desired.

☐ **Gold Coast In-The Water Boat Show**
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☐ **United States Sailboat Show**
___ Adult Tickets at $4.00 each, tax included
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☐ **United States Powerboat Show**
___ Adult Tickets at $3.25 each, tax included
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☐ **North Atlantic Boat Show**
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Check enclosed for $_____ payable to the In-The-Water Boat Shows.

Mail this coupon to: **The In-The-Water Boat Shows**, P.O. Box 1631, Annapolis, Maryland 21404

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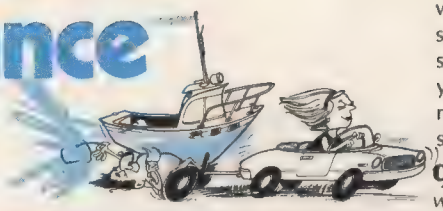
maintenance

ask RUDDER



by Bob Whittier

q *Is anti-fouling bottom paint needed on a boat that is kept on a trailer and used on a lake over weekends?*

a No. Somehow, many newcomers get the impression that anti-fouling bottom paint is needed on all boats everywhere. It isn't! It is needed only on the bottoms of boats moored in salt water for many days or weeks, long enough for a substantial and objectionable amount of marine growth to form on the bottom. It does not hurt a boat at all to put it into salt water for a weekend or even a week or so without anti-fouling paint. At worst you'll have to scrub off the beginning of a fouling coating when you haul out. The rate of fouling varies widely with climate, water temperature and time of year, the latter being connected with the breeding seasons of marine growths. Boats moored in some fresh water areas for long periods of time can collect algae and need an entirely different kind of anti-fouling paint.

q *I bought a big old wooden boat and on doing some work to the stern bearing, it struck me that there's nothing to keep solid sea water out of the shaft alley in the deadwood. Now I'm worried about that vital wood remaining waterlogged all the time. Will it rot out?*

a Stop worrying. Waterlogged wood will not rot. Only moderately damp wood rots. Rot is caused by fungus growing in the wood, consuming its cellulose. Being a form of plant life, fungus needs oxygen. There's too little oxygen in waterlogged wood so the fungus literally drowns!

q *I have owned a 45-year-old carvel-planked cruiser for a few years and have begun to wonder how often she will need new caulking and when I can tell when the time has come.*

a There's no pat answer. It depends on the boat: how well it was made, of what kind of wood, how wide and thick the planks are, how it's been used and cared for. A logical time would be when many layers of old bottom paint are so rough and flaking that cleaning the bottom down to bare wood is in order. Another logical time would be when there are many small leaks all over the bottom area, leading you to pry out scattered samples of old caulking. If widespread hardening and cracking are discovered, then a new caulking job is in order, too. Caulking is something of an art. Older boatyard men able to do it are rapidly retiring and becoming scarce, and now with 70 percent of the pleasure boat fleet composed of fiberglass and metal craft, rather few young workmen are picking up the skill. The book *Boat Carpentry* by Hervey Garret Smith, published by Van Nostrand Reinhold, New York, is a good source of information.

q *Waterfront people tell me so many conflicting things about electrolysis that I am dizzy. Can you help me?*

a Yes. There's a book out that contains a whole chapter on the subject. It's called *Your Boat's Electrical System* by Conrad Miller, $7.50 from Motor Boating & Sailing Books, 224 West 57th St., New York, N.Y. 10019. In its 340 pages, it covers all other phases of pleasure boat electrical systems and I recommend it to anyone wondering about batteries, generators, wiring layouts, electrical trouble shooting, equipment installation, etc.

q *Where can I buy Dacron sailcloth?*

a Most marine stores don't carry it because of small demand. Sailmakers in your area stock it and will usually sell it to boat owners; look them up in the Yellow Pages. You can get it by mail order from Defender Industries, Inc., 255 Main St., New Rochelle, N.Y. 10801. Their catalog (75¢) lists hundreds of boat maintenance items.

q *The sheet steel galvanized gas tanks in my boat have some rust spots on their lower surfaces and especially at the welded seams. How can I test the rusted places for strength, and would it be all right to grind the rust off with a disc sander and use metal primer to try to get a few more seasons out of these tanks?*

a Probe the suspected areas with reasonably firm pressure on a carpenter's awl. If the metal yields at all, obviously it can't be trusted afloat. Nix on grinding, especially at the welds. Too much danger of taking off just enough metal at a few spots to bring on pinhole leaks. These are dangerous as they will let enough gas leak and evaporate to fill the bilge area with terribly explosive gasoline vapor. I wish the Coast Guard would conduct a study to try to find out how many of the serious boat explosions and fires each year are the result of boatmen making makeshift repairs to gasoline tanks that should have been replaced.

q *We have to transport a fine old wooden boat a considerable distance. Any suggestions?*

a First, look into the services offered by boat hauling companies. There are several. Some specialize in delivering new boats from factories to dealers; some specialize in transporting privately owned boats for the owners. Your local marine dealers and boatyards will know which ones are active in your area. Such firms are sometimes on the lookout for loads going in the direction of their return trips and mutually helpful arrangements can be made. Boat haulers employ men experienced in coaxing boats onto and off trailers safely, have appropriate insurance, know the quirks of various routes (steep hills, low bridges, etc.) and so are good people to do the job. A good, sturdy cradle that supports the hull is vital. Usual precautions are to drain all tanks, disconnect propeller shaft from engine (to avoid strains that accompany slight hull distortion), remove all loose objects, secure doors, drawers, etc. with tape as a precaution against their catches working loose under flexing and vibration, and similar common-sense things. If it's a wooden boat that is now in the water, cleaning the bottom and applying fresh bottom paint will help seal water into the planking and avoid too-rapid drying out under the influence of sunlight and highway wind.

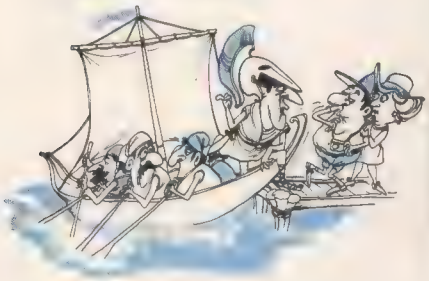
q *I am trying to find replacement solid bronze bushings for some of the old blocks from my sailboat, but no marine supplier has them. Can you help?*

a Seems like two or three times a year I have to repeat these few words of wisdom: You often have to go *outside* of the marine trade itself to find many things you need for boat maintenance jobs! In your case, the thing to do is to go to a large bearings specialty warehouse in the city. They will have in stock bronze bushings of many sizes and shapes. After all, sailboat blocks are not the only things that use such parts—a thousand other manufactured products use 'em, too! If they don't have the exact size and shape needed, any small local machine shop can make them up for you.

Readers are invited to mail questions to this department. Address Bob Whittier, RUDDER, *1515 Broadway, New York, N.Y. 10036.*

cruising
ask RUDDER

by Julius M. Wilensky



q *In chartering yachts in the Aegean, what's the difference between Greek terms and Mediterranean terms?*

a Make sure there's a clear understanding between you and the charterer. Both bases include the boat rental, the crew's salary and the boat's insurance. Greek terms also cover fuel and lubricants for a maximum of eight hours cruising in each 24 hours, crew's food, port charges within Greek waters, water costs and ship's laundry costs. Mediterranean terms have you paying for all operating expenses including fuel and provisioning. This is clearly explained in a free booklet titled *Tariff 1975,* available from Hellenic Marine Consultants, Ltd., Skra 94 and Thesseus Ave., Kallithea, Athens, Greece. Their free brochure, *Yachting in Greece,* describes their offerings with photos. I don't want to discourage you or categorically denounce the whole Greek skippered fleet, but I've talked to and heard from too many dissatisfied customers of skippered Greek charter boats. Some complaints of charterers were that the skipper touted them off the itinerary they wanted, the skipper wouldn't let them work the boat, they were promised English-speaking crew and didn't get it, they were steered to shoreside places where they were overcharged, and the cooking or food didn't suit them. With a bareboat charter you get to choose the itinerary and sail the boat. One of my most memorable cruises was a delightful bareboat charter from Piraeus among the Cyclades and the islands of the Saronic Gulf. None of us

continued on page 53

Readers are invited to mail cruising questions to this department (describe type and size boat you cruise in). Address Julius M. Wilensky, RUDDER, *1515 Broadway, New York, N.Y. 10036.*

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electronics

ask RUDDER

by Manfred W. Meisels

q *I want to mark the location of a small but lovely fishing reef near an offshore drilling platform that is about to be moved. A buoy won't suffice because I want to keep the reef secret from commercial fishermen. I can navigate to within ¼ mile of the reef, but I need a way to home in from there.*

a Shame on you, wanting to keep your fellow fishermen away from that reef. Without in any way countenancing your antisocial behavior, let me suggest that you obtain one of those ultrasonic "pingers" dropped by oceanographers and oil drillers to mark sites.

One manufacturer of suitable equipment is Johnson Laboratories, Southhold, N.Y. 11971. Their smallest unit, costing $85, sends out a continuous train of ultrasonic pulses for about eight months and has a range of 500 yards. It's about the size of a small flashlight and works from self-contained batteries.

The signals are detected by a small submersible hydrophone said to be accurate within two degrees. The hydrophone costs about $135. Thus, something over 200 clams puts you in business—but that's enough to buy several fine kettles of fish, or at least provide the down payment on a Loran C navigator.

q *Is a 1-watt portable VHF radio adequate for safety purposes? My outboard does not have a generator.*

a Theoretically, yes. The Coast Guard's listening network is designed to pick up 1 watt up to 30 miles from shore. In practice, I'd sooner have the extra power of a permanently mounted set. Some of the newer ones are quite small and will reach out nicely even if powered only by a storage battery taken ashore for occasional charging.

q *Who makes a time-frequency receiver for WWV stations that I can use at sea? Dry-cell or 12V operation would be essential.*

a Any good shortwave radio will do the job for you, but Radio Shack has a specific unit for the purpose. It's called the "Timekube" and offers crystal-controlled reception of WWV on 5, 10 and 15 MHz. It's battery powered and sells for $50.

q *My boat has a pair of counter-rotating engines in which I'm replacing the generators with alternators. Can an alternator run in either direction, or do I need left and right-hand models?*

a It makes no difference. Current flows both ways in an alternator and is rectified to provide DC of the correct polarity regardless of which way the alternator turns.

q *Can I use a battery charger to help start the engines when my batteries are low?*

a Given the average 10-amps-or-less charger found aboard most boats, I wouldn't. Starting currents can easily exceed 100 amps. If the charger is called upon to provide a large share of this current, it can be damaged or at best blow a fuse or circuit breaker if so protected against overloads.

q *What is self-corrosion?*

a It's electrolysis between the two metals of an alloy. In common brass, for example, the copper will react with the zinc content of this alloy. Soon, the zinc is electrolyzed and all that remains is a weak, spongy copper mass. Beware, therefore, of using brass household-type plumbing fittings and valves in a salt-water environment.

q *Do you consider a remote-reading electric compass a good idea for boats?*

a Yes, if you cannot mount the helmsman's compass away from magnetic disturbances. Steel boats, boats with unusual electrical systems and engine locations, or those with more than one helm location might benefit from a remote compass. The digital display features of some of the more expensive remote compass models also might be useful to some skippers.

Reliability, however, just has to be inferior to that of a conventional liquid-filled compass. The remote compass is a combination of a standard compass or other magnetic sensor and sometimes very sophisticated electronic circuits to display the heading. Based on the well-known law that "If something can go wrong, it will," anyone who invests in a remote compass should keep his wallet open long enough to buy an old-fashioned non-electric compass, too.

q *Can I use a through-hull fitting as the ground plate of a lightning protection system?*

a It's a bad idea. The immersed area of a proper lightning ground should be at least one square foot. Worse yet, the heavy currents of a lightning stroke could damage the fitting. If you're lucky, such damage might simply weld the fitting shut. If unlucky, the damage might be discovered by a diver from your insurance company.

Good advice on this and other aspects of lightning protection are available in a 50-cent leaflet from West Products, 161 E. Prescott St., East Boston, Mass. 02128. Methods for both sailboats and powerboats are both described. Inexpensive but necessary components for a lightning protection system such as special wire, terminals, etc., also are offered in that publication.

q *How good are those all-channel VHF radios?*

a Several new ones have come onto the market this year at very attractive prices. The earlier crop of models cost well over $1000; the new ones are much more attractively priced—one widely-advertised model carries a price tag of only $695.

At these new prices, the all-channel sets become financially interesting because the cost of a separate channel in a conventional VHF radio is around $15.

As to reliability, the older all-channel sets did not attract many complaints; the new ones may be equally good, but it's too early to tell. Just remember that failure of the tuning system in an all-channel set puts you completely off the air. A similar type of failure in conventional radios would cause the loss of only one channel.

Readers are invited to mail electronics questions to this department. Address Manfred W. Meisels, RUDDER, 1515 Broadway, New York, N.Y. 10036.

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design
ask RUDDER

by Joseph G. Koelbel Jr.

q *Please comment on a point made by Robin Knox-Johnston in his article in the February 1975 RUDDER (page 39). He states, "There is no question that our keels give tremendous lift . . . ." How can a keel give lift?*

a In fluid dynamics the term "lift" refers to the component of the resultant force acting normal to the direction of motion. This is easiest to understand in the case of an airplane wing, which is where the term originated. When the wing (or keel, or rudder) is at rest in the fluid, all the pressure forces on the surface balance out. There is no net force. (There is a buoyant force, but this is negligible in the case of an airplane wing because the density of air is very low, and in the case of a keel or rudder is not relevant, although it is not insignificant.) When the wing moves forward, the air is forced out of the way at the leading edge, it flows back around the wing and closes in at the trailing edge. This air flow is accompanied by a change in the pressure distribution, becoming generally higher at the leading edge and on the under surface, and lower on the upper surface. The net result of all the pressure forces on the wing is a single "resultant" force acting somewhat toward the rear and upward. The air flow also results in skin friction, which applies a force to the wing, mostly rearward and a little downward. The final resultant of all these forces can be broken up into two components, one parallel to the direction of motion (rearward, the drag) and one perpendicular to the direction of motion (vertically upward, the lift).

As the keel of a sailboat moves ahead through the water, making leeway, there is an exactly analagous situation. The drag is obvious. The "lift" is a sideward force acting perpendicular to the direction of the boat's motion (combination of forward motion and leeway) which balances the sideward component of the wind force on the sails. Efficient keels require less leeway angle and/or less area to generate the necessary side force. Consequently there is less drag, not only on the keels, but on the entire hull.

q *I am thinking of buying a Tahiti-type fiberglass sailboat hull to adapt into a salmon troller. Will I have any problems with engine placement, attachment of wooden deck or hull life (I've heard fiberglass becomes brittle and lasts only 7 to 8 years)? Perhaps I should build in wood since I've built two fish boats before.*

a I recommend against converting that type of sailboat hull. Your best bet is to get a plan that suits your purposes from William Garden, 2071 Kendall Ave., Victoria, B.C., Canada. He has designed many boats of this type which would be much better suited than the Tahiti design. Discuss with him the possibility of "one-off" fiberglass construction. There is no reason why you can't put a wooden deck and superstructure on a fiberglass hull. Fiberglass has demonstrated a useful working life well in excess of 15 years. That should not be a worry if you choose the material for low maintenance (but it is not "maintenance-free").

q *In regard to the proper length of a paddle for a canoe: Stand up straight and look straight ahead. Place one end of the paddle close to your feet. The other end should just touch the end of your nose.*

a Thanks very much. (This refers to a question in an earlier column in which I expressed ignorance of this subject.)

q *I have the plans for Ostkust (RUDDER Plan Catalog) which I want to build for use on Lake Erie. However, I recently became interested in Meadow Lark. Is she suitable for Lake Erie? If so, and if the materials cost no more than twice those of Ostkust, I would probably go ahead.*

a These boats are very different from one another. Ostkust is 24' overall, 19' on the waterline and draws 3'7" of water—a heavily-ballasted, deep-keel boat. She sleeps two. Meadow Lark is 33' overall, nearly as long at the waterline, and draws only 15 inches with the leeboards and rudder retracted. Her beam of 8'1½" is only a foot or so greater than that of Ostkust. She is a flat-bottomed, unballasted sharpie and sleeps four.

Regarding costs, I have no accurate figures for either boat, but I'm quite sure Meadow Lark will not cost twice as much as Ostkust. She will require roughly 1½ times as much wood and fastenings but has no ballast keel. She will be much easier to build than Ostkust.

I guess you can get along with two berths since you were considering Ostkust. In deep water where there is usually some chop, Ostkust will be better. She will do more "hobby-horsing" because of her shorter length but will not pound like Meadow Lark. But Meadow Lark will survive some pretty rough water.

I think if your boating will consist of mostly daysailing and some week-ending (just one night on the boat), and if this will be done in deep water, as it almost always will be on Lake Erie, then you should build Ostkust if it is within your capabilities. On the other hand, if you will be going on longer cruises which (naturally) require living on board for several days or weeks at a time, and which would permit you to reach places of interest with restricted water depth, I would recommend Meadow Lark. I don't know where you will keep the boat, but it is possible that shoal draft will be a big help getting in and out of your own harbor. Finally, if you want to trail the boat to and from your home, Meadow Lark's beam will be a problem as it is over eight feet.

q *What is the fitting shown at the bottom of the picture of the Paceship 26 on page 43 of the February 1975 RUDDER, and where can it be purchased?*

a It is a pelican hook, designed for quick attachment and release of, usually, a cable, in this case the lifeline across the transom of the boat. The hook is attached to the cable by means of cable terminals, a clevis on the right and an eye on the left, as in the picture. The hook is attached to the clevis by a clevis pin which has been inserted, in this case, upward through both fittings. The pin is secured in place by a stainless steel retainer ring. The terminal fittings are ordered with the lifelines. The pelican hook can be purchased from any good sailboat hardware company like Wilcox-Crittenden or a marine hardware store.

Readers are invited to mail questions to this department. Address Joseph G. Koelbel Jr., RUDDER 1515 Broadway, New York, N.Y. 10036.

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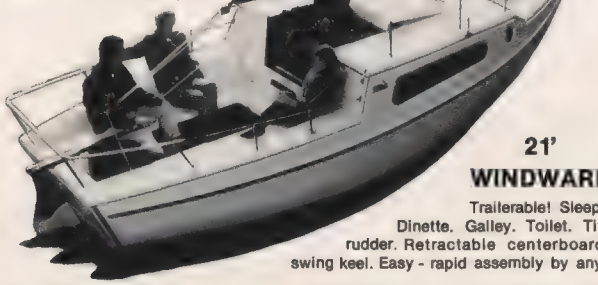

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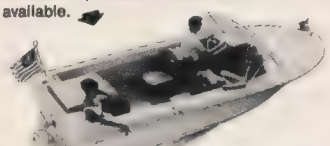

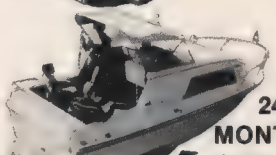

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The Wonderful World Of Little Boats

by Don Olesen

HORSE APPLES: Bill Beavis of Britain's *Yachting Monthly* is a man who often keeps his tongue firmly planted in his cheek. With this in mind, let me relay an item from one of Beavis' readers. It concerns a substance called "Horsey Macastar," and it is used to caulk leaky dinghies.

Ready? The ingredients are tidal mud, tar and sawdust, stirred together into a "lovely, black gungy, squelchy mess." Next you find a field with a horse in it. While one intrepid yachtsman approaches the horse's bow with a lump of sugar, the other "stealthily" steals up on its stern and gathers a sample in a bucket.

"The third ingredient was now mixed with the others and applied to the leaky garboards of the dinghy—both inside and outside. Invariably, on launching the dinghy, it stayed completely dry inside and had a delightful 'farmy' aroma."

I do not vouch for the authenticity of this formula, and am not about to test it.

SATAN POWER: As you might have guessed from past columns, I am a sucker for sea movies. And so, when my TV program guide promised a zinger of a movie, *Satan's Triangle*, I was glued to the tube. It is about that patch of the Atlantic where weird and nasty things happen to vessels large and small, and it stars Lovely Kim Novak.

Well, I won't bore you with the details. But at one point this large ketch bearing Kim and friends is being battered by "hurricane force" winds (that's what they said). And you get this shot of the sails luffing gently, as they might in a 10 mph wind. The helmsman is directed to "keep her into the wind." He does. The engine is busted. The sails are luffing. Keep her into the wind? Using what, pray tell, for steerage way? Satan power, I guess.

Ah, the power of Satan (or perhaps, Hollywood). It defies logic and aerodynamics!

RAFT DODGERS: There I was at the Wolf River Lodge, White Lake, on a mild (for northern Wisconsin) spring day. Getting nervous. In 20 minutes we will spin off down eight miles of wild, lovely Wolf River in an eight-foot inflatable raft. Summers, of course, hundreds of people do it every weekend. Today, though, the Wolf is high and feisty—20 inches above low water stage. And cold; not too long out of the ice.

And here is George Steed Jr., owner of the lodge, renter of 50 rafts, making cheerful small talk, about the rafter who spilled out of his raft last week in a Wolf River rapids. A cascade of water peeled off his life jacket. Paralyzed by icy water, he drowned.

"Now, leave your watch, wallet, anything of value here," George said. Thanks, George, I needed that. We toss the raft in back of the truck, drive upriver and launch near Hollister. Wild, wooded, unspoiled. The river rustles past, clear, cold, amber from the swamps that feed it.

We tie on life jackets, launch and climb aboard, each taking a canoe paddle. I mentally check my life insurance. What happens now is a mixture of blur and placid beauty. Stretches of calm flowing river; trout water; ducks, blue heron flap off ahead. Then a roar of rapids ahead; a frenzy of white water; ranks of standing waves up to four-feet tall. We dodge great mossy boulders; chute down a toboggan slide; slam into a hole behind two huge boulders; spin out of control; paddle furiously, get control again. Solid water cascades over the bow. Five inches of icy Wolf sloshes in the raft. My sneakers are soaked, then my bluejeans, up to the waist. The boat buckles, undulates like a caterpillar, over the rocks, through standing waves.

My toes are frozen, AWOL, lost. My legs are numb. And, suddenly, calm water and the lodge. Home. Dry clothes. The first beer tastes grand.

'ONLY A FOOL': You good readers continue to send in marine superstitions, and David Keith of Westport, Nova Scotia, offered a bumper crop. I regret that space permits use of only a few. Consider:

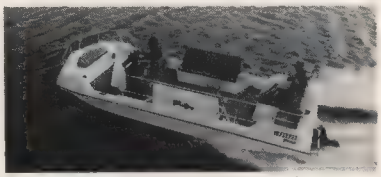
"There is an old superstition that says it is lucky to have a name for your boat which contains seven letters." (Does my own boat, the *Maggie O*, qualify?) In some places it is regarded as lucky to have a vowel appear in the name three times, and doubly lucky if that vowel is an 'A.' It is only coincidence that my own 22-foot ketch with dory hull has a name of seven letters with three A's in it—*Karakal*.

"It is considered unlucky, particularly in Britain, to paint a boat green. . . Nathanael Herreshoff is reported to have said that the only colors for a yacht are white or black—and only a fool would choose black.

"Rabbits and preachers aboard are bad luck. So is starting a voyage on a Friday, a Monday or a Sunday, depending on who you talk to and where. In some areas it is unlucky to mention the wind by that name; thus we have the old fishermen's expressions, 'airing up' or 'breezing up.'

"In a calm, one can whistle for a wind. Likewise, a knife stuck in the mast is supposed to bring wind—before the days of aluminum extrusions for masts."

FAST DECK: Viking Boat Co. of Middlebury, Ind., makes a husky "deck boat" of 21½ feet which it calls the V-239-D. It is pictured herewith. At full leap. The boat has a gross weight, with power, of 2745 pounds, which isn't precisely runabout weight. Well, the Mercury Marine people ran said boat over their measured course with a MerCruiser 165 hp inboard-outboard. And the results illustrate the capacity of a generous hull (this one has a beam of 94 inches) to absorb weight without losing speed.



Viking Boat Co.'s V-239-D on the move.

To illustrate: With one human aboard, the deck boat hit an impressive 37.9 mph. Add three more bodies, for an added total of 505 pounds, and the speed drops slightly to 36.7 mph. The weight of a case of beer is not included in said totals.

Readers are invited to mail information or suggestions appropriate to the "Wonderful World of Little Boats" department. Address Don Olesen, RUDDER 1515 Broadway, New York, N.Y. 10036.

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RUDDER
AUGUST 1975

By Trawler To The Abacos:
The Edge Of Change

An eight-day voyage to the Bahamas and back searches out old and new in these fragile islands while testing the prime Meridian–the latest 48.

Text and photographs by Stanley Z. Rosenfeld

The Bahamas almost form a bridge stretching SE from southern Florida to the north coast of Hispaniola. From Lake Worth Inlet (north of West Palm Beach) to West End, Grand Bahama, is only 55 nautical miles. It's 46 NM from Miami to Bimini, and 49 NM from Port Everglades breakwaters (south of Fort Lauderdale) to Bimini. At the SE end of the Bahamas chain, Great Iguana is only 48 NM from Cuba, and 60 NM from Haiti, sitting directly north of Windward Passage, which separates Cuba from Hispaniola. From Walkers Cay, the northernmost Bahama, to Great Iguana is only 462 NM as the crow flies, but it would be about 700 NM as the boat sails, from one end of the Bahamas to the other. There are over 700 islands and cays (pronounced keys) in this archipelago, and they are scattered over 100,000 square miles of the Atlantic Ocean, but their total land mass is only 5383 square miles. If you count minor cays and rocks, there are said to be 2000 more, or a total of 2700 islands, cays and rocks.

Beginning at Little Harbour, about 35 NM from the southern tip of Great Abaco, a string of lovely cays lies eastwards just off the shore of Great Abaco. These cays extend northwards to Elbow Cay, then bend NW with the mainland to Spanish Cay, and extend another 49 miles NW to Walkers Cay. From Elbow Cay NW, an almost unbroken outer barrier reef lies NE offshore to Walkers Cay. This breaks the big waves coming all the way from Africa, providing protection for cruising on the Little Bahama Bank inside the cays. The sound lying between the cays and Great Abaco is one of the best protected bodies of water for cruising to be found anywhere.

—Julius M. Wilensky
Cruising Guide to the Abacos

Eight days seemed hardly time enough for a cruise from Fort Lauderdale, Fla., across the Gulf Stream, over the Little Bahama Bank, through the Abaco Islands as far as Hopetown and return. A strong northerly, bucking the thrust of the Gulf Stream, might make it advisable to wait out more favorable weather. Four hundred miles to Hopetown and return might mean too many daylight hours spent underway and too little time for swimming, beaching, fishing or exploring the islands ashore. But, happy circumstance, the elements that go together to make a successful cruise were with us in abundance.

Our trawler was fitted with the amenities for gracious living. It took a few days to appreciate one of them, the subtle and pervasive dimension of sheer space aboard. The waters we traveled were varied. The Gulf Stream, at first boisterous, became benign. The weather was ideal: some wind, some rain, lots of fresh air and sunshine. At two ports-of-call, we anchored off and explored underwater. At Green Turtle and Man of War we spent some time ashore acquainting ourselves with the people and the life style of the Abacos.

With boat, water, weather and ports-of-call, the other essential ingredient to be added for a good cruise mix is the crew. Ours turned out to have talents, interests and habits that made our daily interaction fun and a learning experience.

One other accessory for fun and learning was our inflatable, six-passenger Avon with a 15 hp Johnson. Crossing the Gulf Stream the boat sat on the swimming platform aft, tucked against the transom where it was light to lift and easy to stow. In the Bahamas it carried us together as we explored the shallows and the beaches. It was our runabout, dinghy, swimming aid and photo-boat. Simple to tend and to tow, the Avon was a versatile asset.

At the start we cleared the inlet at Fort Lauderdale before eight in the morning, the wind southwest at twelve knots, the weather forecast favorable. The sun was large and low over the horizon, its reflection a beckoning path out to sea. A great day to set forth.

Our port-of-entry, West End on Grand Bahama Island, was 69 miles away. The navigational problem was to estimate and allow for the set of the Gulf Stream. The chart showed that at its axis the stream would flow across our track at 3½ knots. We chose our cruising speed, ten knots, estimated we would be set about twelve miles to the north on our passage and so allowed.

In a little while the wind piped up, the sea began to dance, and it looked as though we would have a chance to see if all the roominess aboard was a tradeoff for sea kindliness. The waves were perhaps six feet high, confused with an occasional bigger one. Through this the Meridian handled and tracked well and, whether we met the seas abeam or head on, moved at cruising speed with comfort. The crossing was part of the test; it allowed us to become initially familiar with the boat.

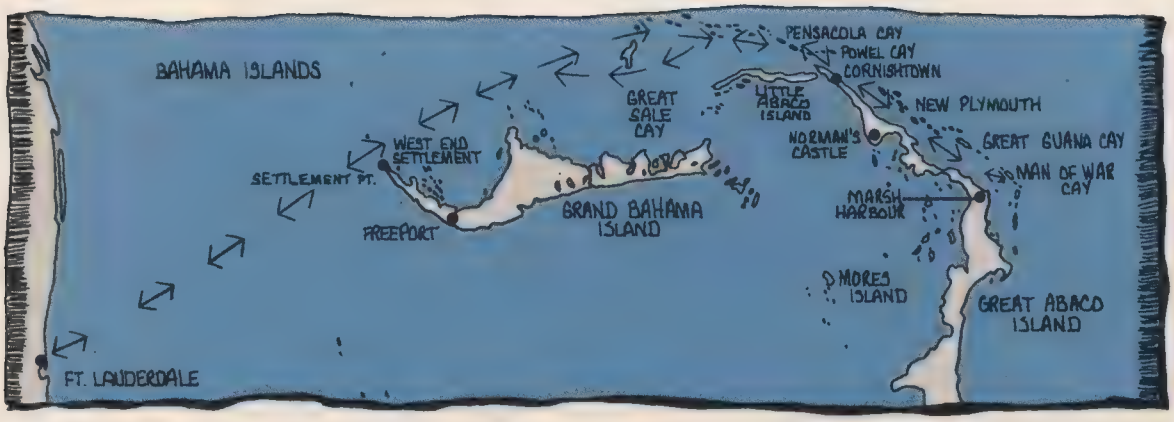
Besides comfort, what other virtues does this Meridian "trawler-type" hull offer? The flybridge is a dry and rather exhilarating place. There are five seats in a conversational grouping. It is quiet, and of course visibility is excellent. The bridge is about seven feet higher than the pilot house. We noticed after a while that an object coming over the horizon can be sighted about fifteen minutes or two and a half miles

continued on next page

Flying the Bahamas yacht ensign courtesy flag, Meridian passes over two-fathom deep Little Bahamas Bank (above). On the powdery sand at Man of War (below) boat's Avon is beached with snorkellers.

Abacos Cruising *continued*

Clockwise from upper left: Boat building with hand tools still thrives on Man of War, Willard Albury saws a frame out of naturally shaped Madeira; Morris Albury shapes a sailboat rudder. Fishing boats are the only population of a cay beach. The trawler yacht's ingenious arrangement for anchoring features a lightweight anchor with rubber tips on stock ends in the hawse pipe and a plow anchor in home built "pulpit."



sooner from the bridge than from the pilot house below.

Most boats have a few special places, a corner of the cockpit that is particularly comfortable, a spot on the deck to stretch out on or to sit with a cozy backrest. There are many such places on this 48-footer. The flybridge is one of them. The seat at the after end of the ample upper deck is another. The deck itself invites stretching out in the sun. Forward, a bulwark makes a protected elbow-high walk around the pilot house. At first glance it seemed high styling, but underway it was a great place to be alone, to lean on the bulwark rail watching the flying fish we flushed out of the Gulf Stream or the porpoises we met on the Banks.

When the Meridian is moored, the salon is a natural gathering place. It is big but intimate and divided so several activities can proceed independently but in contact. The galley is part of the salon, separated by a service bar that provides good working and storage space and acts as a room divider. The space is large enough for two to work together and compact enough to prepare a meal underway in a bit of a sea. There is some support near at hand to lean upon or to brace against seagoing motion of a vessel offshore.

Near at hand is a sink, refrigerator, freezer, storage space, range and oven, micro-wave oven and garbage compactor. The compactor makes cleaning up a lark. It solves the ecological and aesthetic problem of garbage disposal. Nothing goes overboard. Everything goes into the little machine: bottles, cans, packages, all neatly compacted in a plastic-lined

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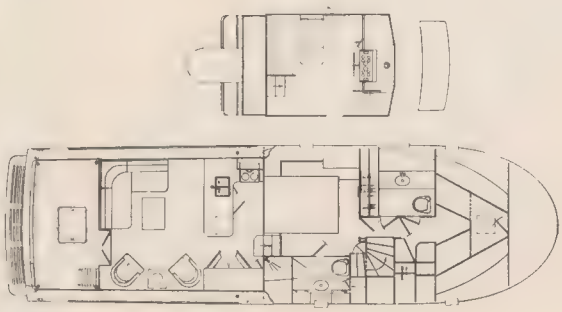
ABOUT THE BOAT

The boat that made the Abacos cruise in this article was hull No. 1 in a new series of Meridian 48s—a Blaine Seeley design first produced by the company in 1973. The updated Meridian offers a more spacious main salon, larger main stateroom which accommodates a double berth, guest quarters with private head and enclosed shower. The master stateroom has its own master lavatory with head and enclosed shower. The main salon is a floating living room—16′ by 12′. The wheelhouse is also large—9′ by 14′, with a newly designed console and chart area, a sofa, and port and starboard doors. A flying bridge with full instrumentation is optional. The company gives the cruising range at 1000 miles with standard 800-gallon tanks for diesel fuel. Standard power is twin 185 hp Perkins engines. A 12 kw generator is also standard. Displacement is 39,000 pounds; draft is 3′4″. There are a host of options available including electronic and safety equipment, air conditioning, instrumentation and galley gear. Base boat price is $125,000. The Meridian 48 described in the article, loaded with extras, was priced at $152,000.



DESIGN

The Saga of Jack Hargrave

From the designer of the new Hatteras long-range cruisers, some plain talk on simplicity, economy and good wholesome boats.

by Jim Wright

The occasion for first meeting is a press demonstration of Hatteras's spanking new 58-foot long-range cruiser *Laurie* in the Atlantic off Morehead City, N.C. At her flybridge helm stands the proud father, Jack Bertrand Hargrave, aiming the 65,000-pound fiberglass hull seaward past Beaufort Inlet.

For Hatteras, whose name has become almost synonymous with fiberglass motor yachts, this displacement-hulled powerboat is a well-researched gamble, a radical departure into the hinterland of the trawler-style yacht market.

For Hargrave, *Laurie* is a sibling after his own heart, as close a reflection of his design credo of "good, wholesome boats" as any of his more than 150 designs for custom yachts in wood, steel and aluminum or the dozens of Hatteras motorboats he has created over the past 17 years. As one watches Hargrave at *Laurie's* helm, one can sense the family resemblance, both sturdily built, devoid of frill or affectation, and intent on performing consistently over the long haul.

Though *Laurie* makes her debut on this warm Carolina afternoon, she must relinquish much of the limelight to the 53-year-old Hargrave, who through sheer persistence and a bit of luck has developed a reputation as a top designer of superlative motor yachts in the world. *Laurie* is but the latest chapter in the Hargrave saga, and the man must take precedence.

Like most of Hargrave's other brain-children, *Laurie* was conceived on the second floor of a stucco storefront building just off the Intracoastal Waterway in West Palm Beach, Fla. Considering the reputation of J. B. Hargrave, Naval Architects, Inc., the office's sprawl of rooms seems quite modest—oyster-colored plaster walls, linoleum floors, rows of drafting tables, filing cabinets and longish metal blueprint files. If not for the photographs of the gold-platers lining the walls or the profile drawings and ship's curves atop the drawing boards, one would think the office could be cranking out plans for anything from office buildings to vacuum cleaners.

If the atmosphere seems chaste yet comfortable, it is because the office is a direct reflection of the Hargrave approach to boat design. What started out as a simple one-room office plunked on top of a one-story shoebox has gradually consumed 2000 square feet of office space, paralleling the growth of Hargrave as a pre-eminent naval architect.

After 18 years of expansion, Hargrave's design business has become octopus-like in scope, with Hargrave at the center and eight to twelve associated designers serving as the tentacles that extend into almost every facet of powerboat design. Gigantic 629-foot catamaran tug-barges. Old-style paddle-wheeling riverboats. Custom aluminum yachts. Shrimp trawlers. Nearly all of the Hatteras boats from 38-foot flying-bridge double cabins to 70-foot motor yachts.

From his boards have come one-off designs from 22 to 125 feet for owners as far-flung as New Zealand, Great Britain and Yugoslavia. To meet the demand, his pace is constant: to the Netherlands one week to tank-test a new design; to New Bern, N.C., the next to launch *Laurie;* back to West Palm Beach to catch up on other projects; then on to Genoa, Italy, to put a new custom 96-foot steel hull through sea trials.

It's not hard to understand how Hargrave, the son of a marina operator/boat dealer in Duluth, Minnesota, could assemble as diversified a boat-design empire as this once one meets Hargrave, who camouflages his industriousness behind an easy grin and candid conversation. As he relaxes behind his desk in his short-sleeve shirt and comfortable slacks, he is more middle-class Midwesterner than Palm Beach gentry. He drives a six-year-old Ford; he lunches not at posh local eateries but behind his desk, nibbling a

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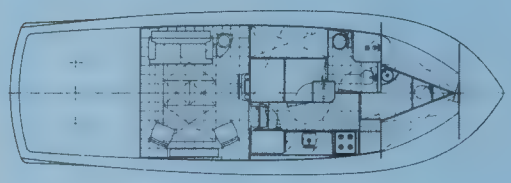
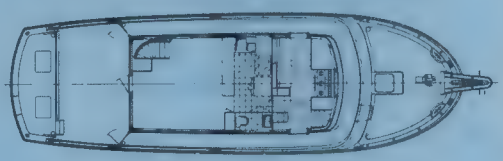
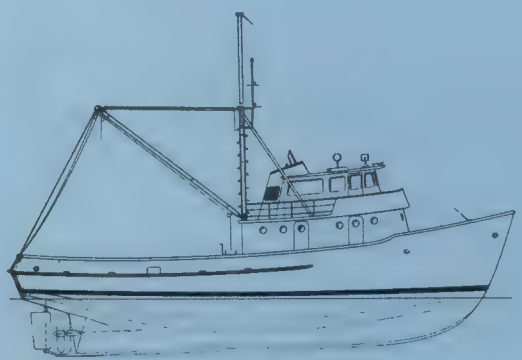
A HARGRAVE GALLERY

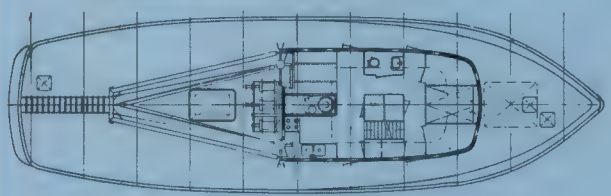


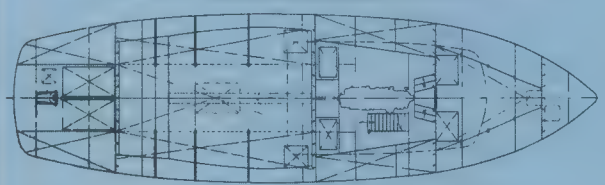
The Hatteras 41, designed in 1959, is the boat that launched Hatteras Yachts and one of the most popular sportfish ever built.



Hargrave's new 58' displacement cruiser for Hatteras has 17'11" beam, 6'7" headroom, 2500-gal. fuel tankage, 3000-mile range.







An example of Hargrave's commercial designs, this 81' steel shrimp trawler has 11-knot speed, 150 tons displacement.

Nordic Star, *a custom 92-foot aluminum cruiser, was drawn up as a sportfishing boat, with the pilot house located aft to improve communication with the cockpit. Speed is 14 knots.*

Updating Trawlers

Despite a furor over semantics, the trend in cruising powerboats is toward these salty fuel-savers.

This design, which appeared in RUDDER'S May 1925 issue, is closer to original trawler concept than latter-day models.

Let's set the record straight: trawlers by any other name would sell as sweet. Call them trawler yachts, long-distance cruisers, offshore motor yachts or whatever, but there's little doubt that these traditional-looking craft are the hottest boats in the cruising powerboat marketplace.

So recently has the trawlers' appeal taken hold that the NAEBM, the boating industry's statistician, hasn't yet begun to tabulate the boats' sales figures as a category distinct from their more-standard cruising cousins. However, boat dealers, who keep one eye on such trends and the other on the cash register, have reported a sizeable surge in trawler interest since the energy crunch hit. "Two years ago we sold a total of 12 trawlers," says one salesman. "We sold that many in the first three months of 1975, and sales will continue to boom as long as the price of fuel keeps going up."

The lure of trawlers, anchored by claims of fuel economy, extends far beyond. Be they sailors who've gradually found tending the sails too cumbersome or powerboatmen who've opted for liveability over speed, many cruising types are attracted to the trawlers' reputation for an easy pace, a comfortable ride, low depreciation and spacious quarters. With this appeal in mind, one builder has gone so far as to promote one of his entries as "worthy of any challenge, whether it be long, comfortable cruises or elegant dockside entertaining." That, in a nutshell, is the pitch for the trawler-style cruiser.

Though these boats have been dubbed trawlers for more than a decade, their lineage goes back some 65 years. The long-distance powerboat pictured above, designed by Frederic Nock

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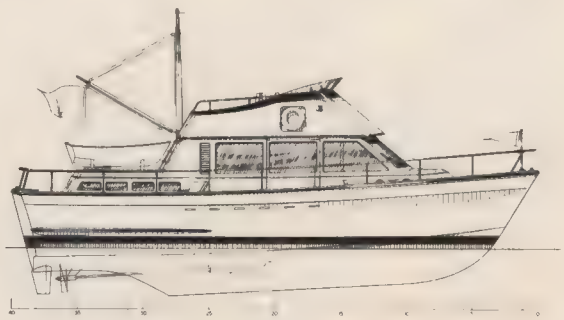
One of the three Gulfstars restyled for 1975 is the 43-foot Mark II trawler yacht, with twin 130 hp diesels, 14-foot beam.



Latest trawler design from Jim Wynne and Fred Hudson, the 40-foot diesel cruiser, evolved from commercial fisherman.

Live Aboard and Love It - Maybe

You don't have to love a house to live there,
but you've got to love a boat to move on board.

by Bonnie O'Donovan

I once asked a man who's been boating in Florida for years if he knew anyone living aboard a boat. Not cruising from port to port or around the world, but working in town and using the boat, well, like an apartment or a house. He looked amused and said, "You know, people who live on boats are nuts." He said it in the matter-of-fact way scientists describe the physical universe, implying that as surely as koalas are arboreal marsupials and iron has a specific gravity of 7.86, liveaboards are social misfits. I took it at face value because it dovetailed with other adjectives used about liveaboards ("hippies," "malcontents," "gypsies") and I really didn't know at that time anyone who lived on a boat. Hadn't met the Millers for example.

Pier 2 of the Dinner Key Marina in Miami looks like any other pier. The water here is as free of debris, the walkways as uncluttered and the boats as well-tended as over on Pier 6. Only a few clues like the bicycles chained at the head of almost every slip and the wooden nameboards on the pilings give the place a permanent air and suggest that 80 percent of the boats on this pier are liveaboards. About halfway down the dock is a varnished nameboard that says *Elysium,* fastened to a piling topped by a pot of ivy. *Elysium* sounds like the name of a Tudor cottage in Sussex, but she really is a spanking white 54-foot American Marine Admiralty Ketch built in 1969.

For the past two years, *Elysium* has been more than a handsome motorsailer; she's been home for Hope and Martin Miller and their two children Mark, five, and Kingsley, seven. Every morning Martin, who has a PhD in medical electronics, steps off the deck in his suit, paper under his arm, and walks up the pier on his way to the office. While Hope, an artist, sends Kingsley and Mark off to the local elementary school with their lunchboxes. In many ways, their life is no different than that of a similar, professional young couple in the suburbs. They can and have had 75 people over for a cocktail party; they watch television in a comfortable "living room"; they've even had pizzas delivered to Pier 2. But the reason they love *Elysium* isn't the similarities with shore life—though they make for comfortable living—but the differences.

Example. While we talk on *Elysium's* covered cockpit, a young fellow named Stefan sticks his head in the doorway. Stefan lives on a small sloop a few slips away and leads a simple life, based on natural food ("When Stefan's hungry, he eats a carrot," says Martin) and picking up repair jobs around the piers. Can their son Mark come out, Stefan wants to know. They've been building a toy wooden sloop and now it's ready to sail. Chatting happily, the two of them sit on the edge of the walkway next to *Elysium* and Stefan teaches Mark how to catch a breeze with a 30-square-inch mainsail in the piece of water the Millers call "our backyard."

It's a very different life from on shore. It's meeting stopovers from every part of America and, months later, getting their letters from exotic ports. It's taking off for a weekend sail without four hours of driving to the boat and stowing gear. And, if you want it, it's the ability to disconnect the electrical lines and leave for a year or two without a house on land to trammel you.

Sure, there are adjustments. "My mother was aghast when I moved on board," says Hope. "Bet my sister I wouldn't last a year. 'How can you leave your garden?' she asked me. The answer is [pointing to the wicker hanging baskets] I brought it with me.

"The hardest part was moving away from a backyard and sidewalks for the children to skate on. Friends were all concerned about the children and, frankly, so was I, but they're much better off. Their imaginations have blossomed and I can't claim the responsibility. If they can't have enormous toys like other kids, then they've learned to have as much fun with cardboard boxes and pieces of wood. I've found that children who live on board are more alive, more energetic, more self-sufficient—they've seen and done things other children haven't.

"In other ways, our values have changed, for the good I think. It starts when you sell off the bric-a-brac, the silver and crystal which still looks beautiful. My worst moment was the garage sale, but afterwards I was relieved not to have all that stuff. We did keep a collection of crystal figurines I had as a child, a nice bit of delicasy among our growing seashell collection!"

The important question, of course, is would they prefer to live on land again? Hope gives this careful attention and tells me something that happened the week before: "We were having dinner with friends and on the way home in the car, I said to Martin, 'I'm really glad we're going back to the boat.' I was remembering all those years of walking through a front door and seeing big, empty rooms."

Outside *Elysium's* light, airy cockpit, the sun was gradually sinking into one of those warm, breezy Florida twilights. Around us, the boats rolled a bit at their slips, a trawler headed back to port and the only sounds were the slap of waves against hulls and of halyards against masts. The company was good, the gin and tonics civilized, the evening tranquil and it occurred to me that this kind of life can be addictive. The only question was whether the windows on *Elysium* were really rose-colored glasses. Over the next month or so, a few dozen liveaboards were to answer that question for me in a very positive way.

First: Find the perfect liveaboard boat, a houseboat designed by Herreshoff with a swimming pool that doubles as a dance floor.

Consider this scene. The harbor of Monte Carlo where lesser yachts respectfully inch their way around what looks like an ocean liner but which really is the 380-foot, seven-million-dollar yacht *Atlantis,* owned by one Stavros Niarchos and probably the greatest liveaboard of them all. *Atlantis* combines the functions of a small city in her rather spectacular length, not only the excesses of a private gymnasium and movie theater, but a dining room which seats two dozen and a swimming pool whose mosaic bottom raises up to double as a dance floor. But as you wander through *Atlantis's* bewildering number of cabins

continued on next page

Living Aboard *continued*

and intimate saloons, you realize even she has her limitations. Above a fully-functional chrome fireplace in the 45-by-30-foot teak-paneled main saloon hangs a Gauguin. But it's not a real Gauguin; it's a reproduction. Experts advised Mr. Niarchos not to expose his beloved paintings to the sea air on *Atlantis*. They had to be copied instead.

Which brings us to another scene, this time in Sausalito, Cal., where a small Pearson Ariel class sloop swings at anchor. Not quite *Atlantis*, this little boat with her 26' LOA, 8' beam and 5'11" headroom, but a home for all that and as desireable to her owner John Hauser as *Atlantis* is to hers. This boat, too, has limitations but Hauser, a 40-year-old with degrees from Harvard and Scripps, isn't troubled. Small she may be, but he looks on the bright side—"I can reach everything I need from one position." And she's not so small that he can't have his classes in oceanography, navigation and ecology meet on her.

Whether 380 feet or 25 feet, beauty and livability are in the eyes of the owner. Some liveaboards opt for a boat with rugged sailing characteristics, like Jack and Marian Ackerman whose *Dunmowen*, a 42-foot schooner designed by Tom Colvin on the lines of an Eastport pinky, is every inch a blue water boat but like any monohull somewhat limited in her space belowdecks. Liveaboards may find that their ideal boat is not one they would choose purely for pleasure cruising. Compromises have to be made. A couple of examples.

Rudolph Steinhofer is a lively 66-year-old retired jeweler from Brooklyn who sails with a crew of two. Two cats, that is, Leslie Uggams who is silky and black and Bos'n who is tiger-colored and fat—at least 20 pounds. It was Bos'n who infuriated the girl sleeping on board the next boat at St. Petersburg Municipal Marina by landing heavily on the cabin top at 5 a.m. Sunday, two hours after a rousing party. She complained; Steinhofer told her it was time to get up and go to church anyway. Nothing bothers Rudie.

The sloop-rigged motorsailer he lives on, however, is not his favorite boat, for she's too sluggish to suit him. He's still loyal to the first boat he lived aboard, a graceful double-ender ketch designed by Herreshoff. "A wonderful sailer," he says, "but not so comfortable. She didn't have the headroom this boat has." His present boat, *Valhalla*, is indeed a comfortable compromise with her 10-foot beam, aft cabin packed with books and open helm station. She's the same length, 30 feet, as the Herreshoff, "but she seems twice the size to me," says Steinhofer.

Another compromise. Charles and Patricia Shaw, retirees in their fifties, had been living aboard an Alden-designed Challenger yawl six years ago. They decided to switch to a 39-foot custom trawler designed by George Stadel. "Switching from sail to power was the big decision," Mr. Shaw explains. "We decided, first, that in the same length boat, we could have much more space in a trawler type. Second, in the Bahamas, during the time we were living on the yawl, we found we made 80 percent of our passages under power and, third, the trawler was more adaptable to hold conveniences we wanted to install, like better refrigeration."

When liveaboards talk about what they want in a boat, the qualities mentioned most often are roominess, reasonable price and sound construction. But within these guidelines, it's obvious they reach different conclusions. Theodore Boutmy, 49, an architect, lives on board his trimaran in Sausalito and he very persuasively argues the merits of the multi-hull for living aboard. We should mention that he cruised and raced monohulls for 20 years before deciding to build his present boat, a 37-foot Vagabond Mk II designed by Hedley Nicol: "I've never

Salty touches: Rudolph Steinhofer and cat Bos'n (bottom) share quarters on a sturdy but hardly luxurious Swedish-built motorsailer. (Top) The Ackermans with their equally seaworthy Colvin-designed schooner, comfortable but without a lot of frills—"There isn't a winch on her."

regretted the decision. All boats are compromises and, like people, no one is perfect. Some of the advantages of my boat:

"Stability. Dinner for six at anchor in 40-knot winds and four-foot waves, and served comfortably without fiddles or a gimballed stove.

"Inside spaciousness and light with permanent bunks—not seats made into bunks—so six people can have their permanent quarters without 'camping.'

"Deck space! For twenty people, for folding sails, for two dinghies.

"Storage. Almost too much.

"Outside head. No problem because it's private, noiselsss, and odorless to other people on the boat."

There are disadvantages, also, for a berth isn't easy to come by when a boat has a 20-foot beam, but Boutmy prefers to moor out anyway. He does admit that he'd prefer a houseboat over a yacht if he were spending his time at the dock.

The houseboat. Here surely is the perfect liveaboard boat, and the owners seem enthusiastic. An older couple praise the roominess, plenty of space for their grandchildren to play, and a lady in the Florida Keys likes the houselike walls and window areas which allow her to devote the back deck to a conservatory for her orchids. Tom Jewett, a bachelor who lives on board a Thunderbird Drift-R-Cruz in Miami, tells how he settled on a houseboat: "I started looking in late summer of 1969. It was wet that year—lots of rain—and this boat was the only one I found that gave me the space I wanted for the money I had to spend and was still *dry* inside." Disadvantages: the flat-bottomed, rectangular houseboat is a boon for storage but a bust as a sailer off rivers and lakes. It would be nice, Jewett says, to have the same space in "something a little more blue water."

The solution favored by many liveaboards is the big cruiser, whether a classic yacht, perhaps somewhat down on its heels, or a modern fiberglass cruiser with all the amenities. A couple living with three children on a Hatteras 41 in St. Petersburg call it their ideal boat: "We have three children and this boat is virtually child-proof, at the same time giving everyone the privacy

Home touches: Esther Bradley (top) missed her garden so she "adopted" a 1500'-long strip bordering the marina where she lives on a Chris-Craft Cavalier 35. The St. Bernard lives with her son on his boat, a few slips away. Paula Blevins proves a galley can be a kitchen – it's 14'-long on her Burger.

they need. We also wanted a flush deck, fiberglass construction and a good beam in a price range of $30,000 to 40,000—this one fit the bill."

Second: Sell the wedding presents; buy drip-dry clothes; take a last dip in the bathtub.

If I were to describe my apartment as a boat, I'd say she has a LOA of 42 feet, a 30-foot beam, full standing room throughout and enough stowage space for the flotsam and jetsam collected over the past 29 years (foot-high model of *Young America*, 150-pound Art Deco sofa, undisciplined Irish setter pup, etc.). But she's not a boat and walking through those familiar four-and-a-half rooms, I try to imagine the upheaval of moving aboard a boat fulltime.

Space shrinks—a lot. I mentally chop off two rooms, kitchen and bath and stand in one bedroom, 9 by 12 feet, which is very roughly the space that Charles and Becky Gifford and their 11-year old son have belowdecks on a 33-foot Alden-designed sloop. "We were living in a 60 by 12-foot mobile home," says Charles, who teaches in a high school in St. Petersburg, "so we cut our living space by more than half. We sold everything we owned except our clothes and books. Hard? Oh, you really have to have your head together." Looking around the Alden, you realize there's little here—except the clothes and paperbacks—that wasn't part of the boat when she was originally built in 1936—there simply isn't room.

One of the greatest adjustments made by liveaboards is the simplification of life forced by limited confines. On the one hand, there's the perennial search for more space in rather ingenious ways. One liveaboard sewed three-inch deep pockets in her cabin curtains to squeeze out stowage for small, hard-to-find items like sunglasses and pencils. Another, "homesteading the ocean" with his wife and six little boys, found he just had to have a bathtub. Solution: one was built into the large table in the main saloon of his 48-foot Piver trimaran. On boats I visited, I saw a rudimentary photographic darkroom set up in a rope locker, a lapidary shop in a head and a carpenter's workshop built into forward crew's quarters. I saw shoe bags nailed to bulkheads, clothes rods in shower compartments and a kitty-litter box in a bilge.

But there's a limit to the amount of space that can be created, even on large boats, so liveaboards simplify, retrench, reorder their interests. They learn in a hurry that you *really* can't take it with you, and the first step before moving aboard is usually a garage sale, a time of tears, pangs of regret and some anguish. Most liveaboards have a trunk or a garageful of belongings on land, but they find even this slim umbilical cord becomes less important with time. One liveaboard puts it this way: "On a boat, you find you have enough storage for everything you need, except for stuff you don't use and never had the sense to throw away. We have a room full of that kind of thing and we barely look at it more than once a year. But it's 'good stuff' and we have to keep it!"

What non-necessities that come on board are few but more valued. I remember a tour of the 54-foot Burger *Lawtom* in Marathon, Fla. Bill and Paula Blevins who live on her pointed out that although there were many things on the big cruiser, there were only three or four items that weren't utilitarian: a portrait of Mrs. Blevins' father, a poem framed in the galley, some penguin figurines—memorabilia of Mr. Blevins' trips to Antarctica while in the Navy.

The Blevins, like other liveaboards, don't regret the things that went. Clothes, for instance. Suits, gowns, furs and the rest are fairly dispensible on a boat where most people live in jeans and bathing suits. And most liveaboards are in warm states like Florida and Hawaii where the outdoor lifestyle is very casual, so work clothes don't have to be elaborate.

What things are missed? Surprisingly simple things.

Ice cubes—many liveaboards don't have any or enough freezer space.

Hot showers—some liveaboards have installed water heaters, but for many a hot shower means a dash to marina facilities on a chilly morning.

Bathtubs—although a charming Austrian girl on a trimaran in the Keys admits, "I never even *liked* bathtubs before I moved on board."

Book shelves—for library-sized books as well as the ubiquitous paperbacks.

Washers and driers—laundromats are a hassle for almost every liveaboard.

And, most subtle point of all, *a floor that doesn't move.*

Third: Realize this isn't suburbia where interests as well as gardens separate two families.

Boot Key Marina, Marathon, Fla., on a Tuesday evening in March. Down here in the Keys, the weather is warm and sultry and the dozens of boats in the slips rest easy on the quiet water. But up on the gas dock, all is activity as 50 or so people arrange bowls of potato salad, trays of ham and shrimp, cupcakes, home-baked bread and bottles of chianti on long tables set up at the water's edge. Everyone contributes something from his galley to this, one of Boot Key's impromptu get-togethers, organized by Bob and Marge Foright who probably have more zest than any two marina keepers I've met. All around, the talk is about boats: friends who are sailing to Panama, a plan to ship a trimaran cross-country from California, conjectures on the whereabouts of some people who passed through the week before, a friendly argument over the merits of propane.

These people are liveaboards and a day on the docks here proves the point made by one man: "Most of our social life is with the folks who live on the docks or who are boatmen themselves. Guests are always people who enjoy boating and who

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Ghosting in light air, a longhorn design spinnaker pulls for the finish in a Galveston Bay weekend race.

Crazy About Sailing In Texas

In Galveston Bay the rage is racing— especially trailables, and lots of them.

Text and photographs by Hanson Carroll

Texans pride themselves on bigness and on burgeoning growth—so it is not surprising that sailboating on the Texas Gulf Coast fits both of these categories. It is not quite a sudden thing, a 14-year-old uprising that can be blamed on Hurricane Carla which flushed out Galveston Bay in 1961 and with it the dominance of powerboats. The N.A.S.A. program, with its crew of sailing engineers and "moonwalkers," helped growth along—Houston being only 57 miles inland—and many of the space agency types bought boats before houses. Astronaut Wally Schirra was more patient; he waited for the racing number 3-2-1 to come up before he started sailing his Cal 25. Then as if the gods were on the sailors' side, the bay began to sink. To geologists it is called subsidence, but to sailors it meant a deeper draft. Texas now hosts the third largest boating fleet in the country, and there is talk of putting Topsider soles on cowboy boots.

The area has its pick of racing rules. MORC-International was accepted last year with the formation of Station 48. There are now 38 members in the club. An average weekend will also start a one-design class in Catalinas who race under standard equipment without spinnakers. Others race under T.O.R.C. (Texas Ocean Racing Circuit), CCA and IOR.

To widen the rule choices they even have a no-rule "Rabbit Race" run by the Galveston Bay Cruisers Association, known locally as the "mail-order yacht club" since it has only an address and a membership list. The "Rabbit Race" start is unique. One boat is dubbed "rabbit" and, flying the rabbit flag, it starts the race on a windward leg. When all boats are headed to weather in some semblance of a line, the "rabbit" slacks his sheets for the lineup, then goes hard off on a starboard tack for three minutes, allowing the remainder of the fleet to pass beneath his stern. He then goes on a port tack joining the fleet competitively and all sail a given course. Howard Williams, manager of the Seabrook Shipyard in Kemah, has been one of the stronger advocates of rabbit racing. He says that some members cherish their plastic rabbit award above all other silverware that can be won in the area. On the weekend RUDDER visited the fleet, no less than 123 boats raced on the 11-mile course. Most of these boats passed beneath the drawbridge under Route 146 to a chorus of car horns from irate drivers trying to cross the Seabrook channel.

In the offshore circuit, there are six races annually held on courses ranging from 30 to 175 miles. These are divided between Galveston and Corpus Christi. The latter port has a smaller fleet but offers ideal conditions with more-constant

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Closeup of several of 300 slips at the Seabrook shipyard in Kemah, which has largest concentration of sailboats in area.

Racing or just cruising, the shallow depths make for a sassy ride in the Bay's short chop. It is 30 miles to blue water.

Sailing in Texas *continued*

winds. In the distance races, Texas hosts the Vera Cruz-Mexico race every other year, a run due south of Galveston 600 miles through the sparsely marked Western Gulf. Topping off the racing menu, the ex-commodore of the Galveston Bay Yacht Club, Jerald Smith, has started a single-handed race from Galveston to St. Petersburg. The race, which had five entries last year, also has a class for a crew of two. Smith sparked interest in solo racing after single-handing his boat from Cozumel to Galveston. The class is open to vessels 30 feet and over.

Galveston Bay is far from a cruiser's paradise. For kicks, you either go to Redfish Island or you may oil-rig-hop your way about the bay. The shore line is flat and uninteresting, but it does offer several opportunities for shallow-draft cruising up the channels and rivers. The bay has an average depth of eight feet. Since the water is murky, only local knowledge or a close eye on the chart will keep you off the clay mud bottom. Winds are best in early spring and early fall and generally reliable for spirited sailing. It is a long excursion out the Galveston channel into the blue water of the Gulf, and curiously few of the boatmen, in the bay do it unless they are on an extended cruise or race offshore. Habit and conditions have developed a Texan sailor who is either an all-out racer or a weekend sailor who watches the starts then retires to a bayside restaurant. There he eats some of the best seafood in the country and watches the vessels return.

Warm year-round sailing weather and the prevailing bay conditions have had an influence on local small-boat design, in which the emphasis is on performance rather than below-deck comforts. Balmy weather makes a large cockpit more desirable than a bulky cabin. Trailable boats make gunkholing adjacent inland waters more of a possibility.

A great deal of credit for stimulating Galveston Bay's sailing growth has to go to noted Gulf offshore racer Fred Maudlin and his family-managed Gulf Coast Yacht operation in Houston and its affiliated marina service in Kemah in the midst of the Seabrook Channel sailing activity.

Nine years ago Maudlin produced his first boat, a GC 22 designed by Martin Bludworth which won its class in the Houston Yacht Club's Midwinters. Later the Maudlin family (his wife Ruth, four children and son-in-law) topped local racing with the GC 20, the 23 and the 29. The boats quickly dominated the racing scene. Designer Bludworth is speed-oriented. As a racer, he's a hard driver who has been known to ask for three sail changes on the way to the starting line.

Then came a new trailable—the 26.

Fred Maudlin wanted a versatile trailable boat capable of ramp launching on the bay's gradual shoreline. "We wanted a trailable boat that can be launched anywhere a base boat can be launched," he explained as we walked through his factory. The company came out with what may be the easiest-launching 26-foot trailable on the market. The GC idea is to shun float-on and float-off trailers and rely almost entirely on a roll-on/roll-off principle and tilt-bed trailers. The result was a 26-footer with a retractable swing keel, 5'9" headroom, berths for five and an able weather performer.

"Most people would shudder at the sight of what happens to their hull as they winch their boat onto the trailer," he said, explaining the severe stress areas near the keel, where rollers support much of the weight. Gulf Coast has added bottom length support to meet the demands of the tilt-bed launch. "We are launched, rigged and underway while most people are still wading around in crotch-deep water," Maudlin said. After seeing the demonstration in time-sequence pictures, I felt sure that Gulf Coast could add the "National Fastest Sailboat Launch Cup" to the family's shelves of winning silverware.

As we walked through the roomy cabin of the GC 26, the two sides of Maudlin, Gulf Coast racer and manufacturer, emerged. "Now this is not what I like in a cabin. I want a narrow center area where one can brace himself quickly in a sea rather than this spacious cabin area." He added, "But this is what the people want and we have to give it to them."

In front of the factory on Long Drive, Cincinnati couple Dave Rohl and his wife were taking delivery on a GC 21. They had first seen the boat at a Cincinnati boat show, driven to Texas to take delivery and were planning on spending two weeks in Florida. Dave was the type of customer GC likes to see. As manufacturers of a range of trailable sailboats, the Maudlins lament the fact that few of them are trailed as much as they should be. But like everything else in Texas, trail-sailing is getting bigger. At Watergate Yacht Basin, a unique service is available to trailable sailboat owners as part of GC's in-use boat storage plan. Trailables are stored behind a fenced-in area adjacent to the water. Here, for a small fee, owners may dry store their boats and take advantage of the self-service launch crane. Since GC boats are designed to be picked up with a bridle hitched to their chain plates (don't try it on all designs), it is an easy matter to store and launch boats complacent in the knowledge that your boat's bottom is not getting any greener. Texas go-fast sailors have a high regard for wetted surface and anything that dispels the too-frequent urge for algae to grow. One new system I hadn't seen before is a Hydrohoist, a pontoon platform that you sail into in your slip. In the time it would take to secure your lines, the water is automatically pumped out of the submerged pontoons and the boat is high and dry in a pontoon cradle. A small 110V AC electric pump does the job.

GC also has a boat-leasing plan where six boats are on a program involving 24 customers. They are all guaranteed so many weekends a year use of the boats for a yearly lease fee. If and when they decide to buy a GC boat, half of their lease money is used as credit towards their new boat. The program brings out the hedging boat buyer and gives him the time to know what he wants when he buys.

Being offered a taste of this smorgasbord of boats, I found it a great chance to get the feel of different designs. Hosted by Fred Maudlin and his daughter Maryland, I found myself at the helm of a GC 26 watching Saturday's races. Sunday, Fred's wife Ruth joined us and we took the GC 29 for the day. Monday was to be my see-the-Bay day alone in a GC 23. For two days the weather had cooperated nicely but this was to be the day of rain. I tried all the rhymes I knew, like "rain before seven clear by eleven." At any rate it rained harder, but this coupled with my complete lack of knowledge of the area made my cruise more of an adventure. I was aground with main and jib flying in less than half an hour. Some of the shoal markers in the area are simply sticks in the channel with direction arrows. Some sticks are minus their arrows, but the stick that put me amuck was an arrowless stick with a cormorant sitting square on the top, his beak forming a perfect arrow in the wrong direction. Reading the "cormorant indicator" in the drizzle forced me to "Gee" rather than "Haw" and I got a new insight into Texas mud.

Unlike the bottomless lofty mud of other ports of the Gulf, Galveston Bay has a heavy clay—an unforgettable keel grabber. After a quick evaluation of the situation which proved unequivocally that neither kedge nor motor would get me off, I decided on what was to be a new idea and I am modestly

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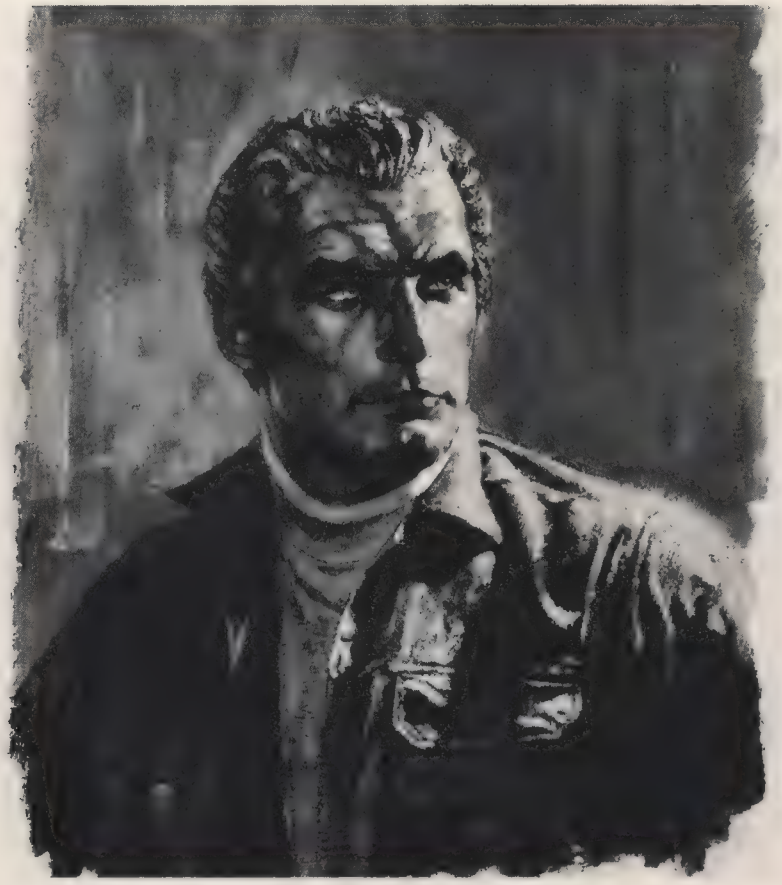
Castaway in St. Tropez, Only V.O. is V.O.

CANADIAN WHISKY—A BLEND OF SELECTED WHISKIES. SIX YEARS OLD. 86.8 PROOF. SEAGRAM DISTILLERS COMPANY, N.Y.C.



Travis McGee, Boatman

John D. MacDonald's private investigator is a consummate navigator, boathandler, seaman, maintenance expert and liveaboard who loves it.

by Martin Luray

MARTIN LURAY

MacDonald: Out of a marine environment, a seagoing private investigator.

Elsewhere in this issue is an article on liveaboards—a deeply researched intensive piece with extensive quotes from a number of boating folk who have given up life ashore for life afloat. Nowhere is mentioned, however, probably one of the most famous liveaboards of them all—a 6'4" ruggedly handsome private investigator cum "salvage expert" named Travis McGee whose home is *The Busted Flush*, a "barge-type houseboat" usually berthed in slip F-18 at Ft. Lauderdale's Bahia Mar.

McGee was hard to reach primarily because he doesn't exist and neither does *The Busted Flush* (or slip F-18 for that matter). He is the figment of author John D. MacDonald, who has written about McGee in 16 novels (the latest, *The Dreadful Lemon Sky* will be published in paperback by Fawcett next month) and has given his seagoing character an expertise about boats and boating that makes him totally appealing to marine buffs who also dig well-plotted detective stories that have some ring of truth. In the McGee books, all of the nomenclature is always correct. McGee describes himself as a "boat bum," but he is good seaman, expert boathandler, able at maintenance and repair of boats and engines. He has a fine eye for good lines—appreciative of beautiful vessels as well as the lovely soul-damaged women that recuperate from time to time aboard *The Busted Flush* as it voyages to the Keys or the Bahamas. What fantasy for you and I as we sail through the fog and murky depths of Long Island Sound.

The origins of *The Busted Flush* are not too obscure; it was won from a "Palm Beach sybarite" in a poker game, described briefly in the first Travis McGee epic, *The Deep Blue Goodbye* (1964) and later enlarged upon in *The Quick Red Fox:*

"I had won the craft in a long poker siege in Palm Beach. The man wanted another advance to stay in the game, this last time putting up his Brazilian mistress as collateral, under the plausible assumption that she went with the boat, but his friends saved me the delicate problem of refusal by leading him gently away from the game."

McGee is not always at slip F-18. Sometimes he is away from boating altogether in places like Chicago and Hollywood and even Speculator, N.Y. *(The Quick Red Fox)*. Sometimes he is close to the sea with adventures in Hawaii, the South Pacific and the Caribbean. But his knowledge of boating shows up when he is aboard *The Busted Flush* and has her moving somewhere as in *Bright Orange for the Shroud* (1965), where much of the action takes place in Florida waters.

McGee on anchoring:

"In the night I was awakened by the creak of the lines as *The Flush* was trying to go around on the tide change, swinging further each time until pushed by the breeze. I always rig two bow hooks in such a way that she shifts her weight from hook to hook when she changes end for end."

McGee gets his lines checked and

then reflects on the ways of the seagoing world. "There are a lot of dead sailors who took things for granted. On a boat things go bad in sets of threes. When you pull a hook and then go hustle to get the wheels turning something will short out on you so that you go drifting, dead in the water. And that is the time when, without lights you drift right out into the ship channel, see running lights a city block apart coming down at you, run to get your big flashlight, fumble it and drop it over the side. A boat is something that never had just one thing wrong with it."

McGee, of course, often singlehands *The Flush,* but on this trip he has two others on board to help him put the boat to bed for the night—this after a long expository blast about the destruction of the Everglades by human folly.

"I studied the chart and picked a spot. I went beyond Marco Pass to a wide pass named Hurricane Pass. The channel was easy to read from the topside controls. *The Flush* draws four feet and is heavily skegged to protect the shafts and wheels. It was low tide... the pass is so wide Roy Cannon (Island) has a sand beach. I edged north a little to get the protection of the headland which forms the north edge of the pass. At dead slow I ran the bow into the beach sand...we put out all four anchors, the two bow ones well up on the beach, wedged into the skeletal whiteness of mangrove killed by the sand which had built up. I carried the stern hooks out into the water neck-deep, wedged them in, stomped them firm. She would rest well there, lifting free with the incoming tide, settling back at the low."

One imagines even McGee, strong as he is, being totally bushed from carrying those two Danforths into water neck-deep. But never mind, McGee survives potential hernia and shows us later how good he is at docking *The Flush*:

"When I balanced forward motion and downstream current, Arthur jumped to the dock with a line and I waved him on to the piling I wanted. With it fast, I cut off the engines and the flow swung the stern in. I put on a stern line and spring line. Chook asked about fenders and I saw that the rub rail would rest well against the pilings and I told her not to bother."

So much for Travis McGee the navigator and boathandler. There is also McGee the maintenance and repair expert who supervises the rebuilding of the upper deck of *The Busted Flush* when it is torn apart by a bomb in *The Dreadful Lemon Sky.* And he is a good hand at fixing an automatic bilge pump, as he does aboard his friend Meyer's "aging cruiser," *John Maynard Keynes.* (*A Tan and Sandy Silence,* 1971):

"I got it apart again. I spun the little impeller blade and suddenly realized that maybe it turned too freely. Found the set screw would take a full turn. Tightened it back down onto the shaft. Reassembled the crummy little monster, bolted it down underwater, heaved myself out (of the bilge), sat on the edge of the hatch and had Meyer flip the switch. It started to

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ABOUT THE BOAT: *THE BUSTED FLUSH*

Although there have been several attempts to delineate the configuration of the *Busted Flush* to make it look like a normal houseboat (a plot perhaps fostered by its owner to preserve the craft's anonymity), the drawing above has been established through investigation to be the original design of the boat. She is not, as her creator has pointed out, made of corrugated aluminum siding, but is a solidly constructed craft utilizing a Navy barge hull as her underpinnings. Further specifications follow:

LOA: 52'
BEAM: not given
DRAFT: 4'
DISPLACEMENT: 38 tons
POWER: Twin 58 hp Hercules diesels
CRUISING RANGE: 600 miles
CRUISING SPEED: 6+ knots
ELECTRICAL SYSTEM: "...under one hatch a whole area paved with batteries, enough of them so that I can stay at anchor and draw on them for four days before they begin to get a little feeble. There is an electric trickle-feed generator for charging. Also a 10 kw gasoline generator...at anchor everything switches to 32V." (Owner's comment.)
CONFIGURATION: Barge-type houseboat. Has bridge steering station above with lounge area. Deck forward, imitation-teak vinyl. Deck aft, teak planking. Below, there is a galley with stainless steel sink, refrigerator-freezer, stove (propane?) large salon-type lounge with "curved yellow couch" and opaque curtains, guest stateroom with private head including a 7' by 4' pale blue sunken tub, master stateroom with "half-acre" twin bed. Sleeps 4 or 2 or 1 depending upon owner's inclinations. Air conditioned throughout.
GROUND TACKLE: "Four big Danforths." Enough anchor chain and rode to meet any emergency.
STEERING: Two stations, bridge and below. Metal Marine autopilot.
EVALUATION, HEAVY WEATHER: "... The *Flush* heaved and waddled setting up a lot of below decks creaking, clinking, clanking and thumping and about every tenth swell, the port wheel would lift out and cavitate, giving us a shuddering vibration. At least I never had to slow her down. Her cruising speed was what other boats slow down to when the seas build."

CRUISING THE U.S.

A Tale of Two Cities

New Orleans is a study in contrasts—of the old-style French Quarter amid modern skyscrapers, of small-boat cruising in a land of giant ocean-going freighters.

by Frank Sargeant

FRANK SARGEANT

More than any other metropolitan area in the United States, New Orleans is ripe for exploring by boat. Jammed on a peninsula along a bend of North America's mightiest river and backed by one of its largest lakes, this Louisiana port is at once two different cities to be sampled by cruising skippers.

The older town is legend: Mardi Gras and Bourbon Street, jazz and jambalaya, streetcars named Desire and sleepy horses clopping through the three-a.m. streets of the French Quarter. Right in its midst, a brand-new city has sprung up, as attuned to the 1970s as the Superdome, the glass-and-steel skyscrapers and jetports that comprise its backbone.

A similar contrast in style can be found on the area's waterways, where even the largest power cruisers and sailing auxiliaries are dwarfed amid the influx of massive cargo ships that makes the Queen City one of the South's major seaports.

What makes New Orleans so enticing for small-boat cruising is the inter-connected series of canals that dissect parts of the city and join the two large bodies of water. The broad Mississippi forms an arc around most of the downtown area, earning the Crescent City its nickname. To the north and east, massive lakes Pontchartrain and Borgne stretch to the horizon. The Intracoastal Waterway passes right through the middle of town to intersect the Mississippi River/Gulf Outlet Canal, the link with the open Gulf of Mexico some 60 miles southeast of the city.

The waterways are continually abustle with the comings and goings of the huge ocean-going ships, and it was because of this major-league traffic that I was at first hesitant when I had the opportunity to cruise around the city last spring in Glastron's sportscar-sized V-179 Starflite bowrider. I could just picture myself in the relatively narrow canals around town when all those ocean-sized wakes began to richochet off seawalls and play ping-pong with the little sterndrive. In addition, I had heard of 30-mile-wide Lake Pontchartrain's reputation for getting nasty in a hurry in foul weather. Nonetheless, the prospect of seeing New Orleans by boat was too good to pass up.

I picked up the Glastron at Eldon Blancher's Sportsman's Paradise in Slidell, just north of the city, one morning in late May. Eldon provided me with the charts necessary for area cruising, N.O.S. No. 11088 and No. 11371, along with a wealth of information on things to see and do near the New Orleans waterfront. As I pushed off, thunderstorms loomed across the horizon.

Leaving the protection of Eldon's canal about 0800, I found Pontchartrain's eastern arm already in a bad mood—the six-mile fetch of a southwest wind had worked up a wicked chop. I braced myself for a rough ride down the Treasure Island markers that lead to Rigolets Pass, entry to Pontchartrain from Lake Borgne, to the east. Surprisingly, though, the tri-hull leveled out everything in its path and kept my hip bones connected to my thigh bones with minimal discomfort, even at the boat's 30-knot cruising speed.

I entered Rigolets at marker 4, and found smooth water—calm enough to give the 140 hp MerCruiser its head. The 1000-pound hull shot up to its 40-knots-plus top speed like a scalded cat. With an eye on chart No. 11371, I made the winding seven NM run to Lake Borgne in just a bit more than ten minutes, then throttled back to a fuel-saving 3500 rpm on approaching Catfish Point, at the entrance to the Intracoastal Waterway.

Beyond the point, four-foot seas dropped progress to a crawl. One particularly strong wave boiled in over the bow, but the well-placed forward scuppers drained off the deluge before any of it reached the passenger compartment. (I later learned that the point can be avoided in rough weather, by slipping through Little Rigolets Pass, about two NM west of Lake Borgne. Little Rigolets enters the ICW directly, but contains numerous unmarked pilings so boatmen trying it for the first time should be cautious.)

Once inside the ICW, I found flat water and a perfectly straight run to the city, some 15 NM southwest. Though the low, flat country around the waterway is one of the less interesting stretches of the cruise in terms of scenery, the

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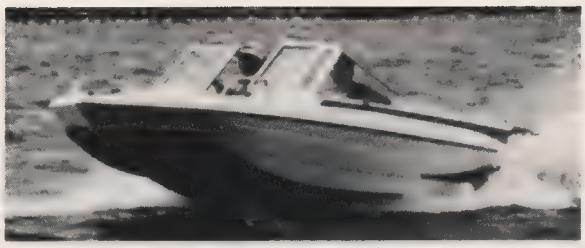
ABOUT THE BOAT

Glastron's V-179 Starflite looks and handles like a sports machine. You fit down into it as you would into the cockpit of a sportscar—a good place to be when you start doing the tight figure-eights the boat is capable of at 40 knots. The MerCruiser 140 performed flawlessly, and the boat came on plane smoothly, refusing to bog down at any speed. Dumping the throttle causes motorcycle-like acceleration, a plus for the skiers the boat is designed to attract.

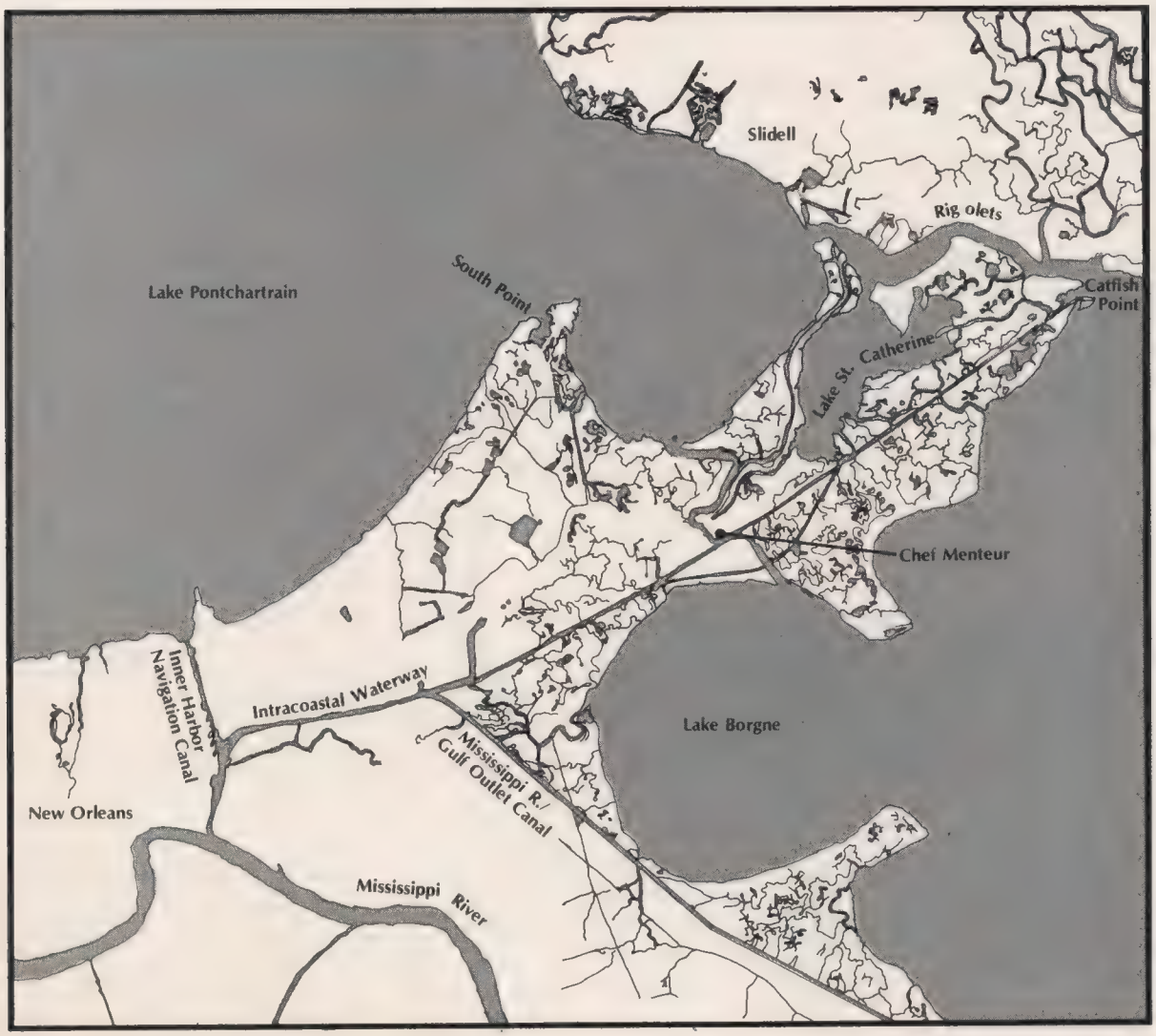
Interior trim is smart and well-coordinated, right down to the carpeting, and the instrument panel is attractive and efficiently laid out. Seating for six, though this would be a bit much for the 16'9" LOA. The motor cover is molded in flush with the transom for a pleasing cleanness of line you just don't get in outboard-powered boats. Noise level was low, even at full-bore.

Cruising speed is a bit over 30 knots at 3500 rpm, at which speed the little four-banger drinks around four gallons per hour. The 18-gallon tank gives a range of about 135 miles at this consumption.

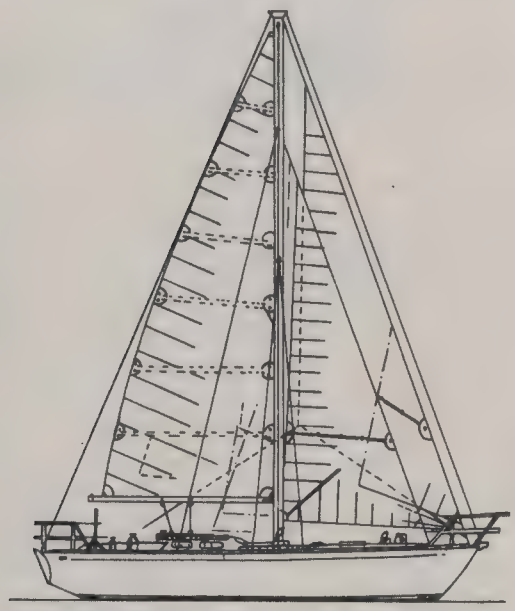


The tri-hull configuration showed a surprising ability to smooth out the nastiest chop, an important feature in a boat where the driver must sit down and expose his posterior to the slings and arrows an outrageous sea can generate. The boat handled well in high-speed turns, too, with little slide and no tendency to cavitation or kedging. Lateral stability was very good, another plus for the tri-hull, and for the 81¾" beam.

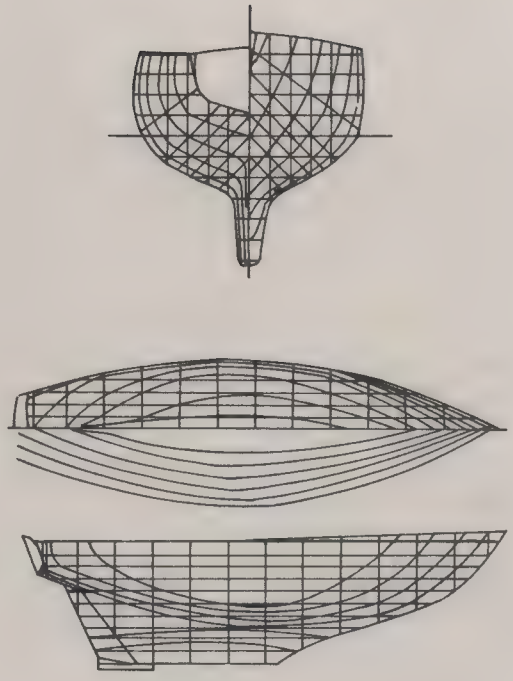
About the only negative factor was legroom in the driver and passenger seats—much too little, even for my 5'11" frame. A big man would have real cramps in short order. Overall, though, the V-179 is a clean, racy, solid boat.—F.S.



ON BUILDING A BOAT:



Sailplan and lines for Cartwright 36 offshore cruiser.



Setting Up For Fiberglass Construction

From designer's mind to finished craft, a RUDDER editor builds his boat and shows you shortcuts to make the job easier.

by Jerry Cartwright

Author at work setting up C-Flex batten in order to draw in section line on plywood after first marking off from pattern.

This is the first of a series of articles describing the building of a Cartwright 36 ocean cruising sloop using the C-Flex method. The series, which should be of practical use to home builders, will take the reader from set-up stage to final rigging.

It might be of some interest for the keen sailor with a do-it-yourself itch to survey and examine just what is involved in building a boat from scratch — a sturdy offshore cruiser, in this case, utilizing a recently developed method of one-off construction called C-Flex—in order to gain additional data on the whole procedure. Although this particular vessel is being built commercially at Solna Marine, in Newport, R.I., with Bill and Toni Harsh putting up hard-earned dollars towards its completion, the methods I used are exactly the same as might be employed by an amateur builder. In the initial setting-up stage which we will

review in this first article, the preliminary work could be made applicable to various other types of hull construction such as the wood veneer method used by the Gougeon Brothers, ferrocement construction, or FRP sandwich core.

No claim is made that this is the best method with which to set up, or the cheapest or the fastest, although I doubt if there could be much saving of time or money by another system. It is simply one method and is intended to give the inexperienced builder some insight into this somewhat confusing part of boat construction and will serve as a basis of comparison with other methods.

Most boats start from a basic set of lines drawings, and most builders start from a table of offsets which have been taken from the drawings and represent various measurements on the finished boat. These offsets usually require lofting although most designers selling plans to amateurs nowadays are including full-size station patterns in their package, greatly simplifying the initial job of setting up required of the amateur builder. These patterns are transferred to wooden station frames, which are sawn out, assembled and set up at station locations that represent equally divided segments of the whole boat. For instance, a ten-station boat with a waterline length of 30 feet will have eleven frames representing ten sections of the boat neatly spaced three feet apart which combine to produce the 30 feet LWL. In addition, there will usually be two more stations to extend the overhangs with maybe a few inches overhanging these two frames. The idea is to transmit the lines and offsets of the boat—represented by the station patterns in this case—to the final jig in the proper sequence and shape to serve as an accurate skeleton for the finished boat.

On this 36-footer I had already lofted out the lines and made up station patterns. The boat is basically a reduction of a successful 40-footer, with various small changes made in the keel, the draft, the ballast ratio, the stem, the transom and the sheer line as well as a reduction in the tumblehome of the topsides, which became less attractive on the smaller boat. To transfer the patterns to the plywood I borrowed a simple method which I had seen used by Bill Seemann, the inventor of C-Flex, when we had set up a small fishing boat at the New York Boat Show. It is faster than the ordinary wood batten and nail method I was used to.

The pattern is laid down on two or three flat sheets of plywood butted together and toenailed. They are set up so that a minimum amount of wood is used for each frame. I had worked out the most economical use of the ply beforehand by using small rectangular slips of paper drawn to the same scale as the section drawing (¾" =1') and representing a 4' by 8' sheet of ply. The frames were drawn on the slips along with the stem and gripe pieces, the horn timber, keel and transom pieces. These pieces would later be cut in ¾" to allow for hull thickness in this area and then slotted to form the outside perimeter of the hull giving a correct surface on which to attach the ends of longitudinal battens. It also gives the framework extra rigidity.

It took 11 pieces of plywood to cut out all the necessary components for the mold setup, with plenty of scrap left over for gussets to bind the individual pieces of each frame together. All the forward station frames (seven) were done on one plywood setup and the aft frames (six) on another.

With the station frame pattern laid carefully on the flat sheets of ply the first station was ready to be transferred. To do this, I used a proper sized radius disk or inset spacer to mark the station line, minus whatever thickness the hull layup, longitudinal, and transverse battens represent in the setup. This round disk can be made of any rigid material such as formica, wood or celluloid, with a hole punched in at dead center. In this case, my hull layup was to be just over ⅜" at the topsides, the battens would be ripped to ¾" and the transverse battens would be just over ⅛". This came to a total of nearly 1 5/16" and the disk was cut to 2 5/8" which placed the hole at the correct spacing from the line when the edge of the disk was placed against it. The disk was then moved along the pattern line and an ice pick was pushed through the hole to make pricks in the ply at intervals of three to six inches depending on the tightness of the curve. The DWL, the deck line, the A2 waterline and a lower waterline were also marked with a row of pin pricks. The pattern was also carefully positioned so that the proper distance is left from the deck line to the upper end of the frame.

This distance can also be worked out in advance by turning the profile drawing upside down and drawing the strongback in the position and location it will be in regard to the actual boat. This is also done to scale with the top of the drawn strongback kept parallel to the base line or the DWL. I also draw the fore and aft view of the strongback in perspective to the section plan. This greatly clarifies the final appearance of the whole mold set up. A draftsman's scale is used to measure off the distances and, with these preparations, the ends of the station frames will automatically fall close to the lower sides of the 2" by 4" crosspiece supports when setting up, which aids in alignment.

After marking, the pattern is carefully slid off the ply and ice picks quickly reinserted into each hole to mark the contour of the frame. A thin batten of C-Flex (an 18-foot length of fiberglass rod, about ⅛" in diameter) is then sprung around the picks (at least 30 are needed—buy them at the local ice plant) and the batten held in proper position with more ice picks. A line is then drawn between the picks using the batten for a guide. This line comes out perfectly fair and the whole operation takes about 15 minutes. The builder must be careful to remember to draw in and fully label the deck and waterlines as well. The pattern is then placed back on the plywood sheets with a proper distance separating the next frame line from the first (about eight to ten inches) and the procedure done again. It couldn't be simpler.

With all the frames marked and any pertinent information jotted down on each one of them, the plywood sheets are then doubled over a second sheet with a nail driven in at each end of each station piece and the frames cut out two halves at a time. This saves time and keeps the pieces together. Each frame is exactly the same on each side making the final mold easier to fair. One man can use a sabre saw (seven-tooth blade) although a band saw (use a narrow blade) will make a smoother cut. The water and deck lines are easily transferred to the doubled piece while joined. Don't forget to notch the lower end of the frames to the proper depth for the stem, keel and transom pieces.

In order to assemble the full station frame as it will be set up on the strongback, the pattern is once again laid out on a smooth floor or plywood sheets, and the pieces of one

continued on next page

Fiberglass Construction *continued*

half the frame set into position and joined with gussets or wooden pads glued (Elmer's glue works well) and nailed so as to hold the seams together. The pieces can be held in position with ice picks while this joining operation is going on. After one side is nailed together the other side is then positioned on the pattern and joined. The first half is then repositioned so that the lower stem or keel end of the frames are butted together and the outboard dimensions of the frames are the correct distance from the centerlines. This will automatically locate the two halves for vertical and horizontal positioning, with a final check across both frames to the outboard edge at the deck and waterlines allowing for the inset. A cross support or spacer is then nailed on (a 1" by 6" ripped in half) along with sufficient vertical supports (one or two 1 by 6s). We used 13 lengths of 1" by 6" by 16" rough-cut spruce (the cheapest available) for this.

When building the strongback, which is the foundation that will hold the frames in place, most builders over-build using 2" by 12"s when 2" by 6"s will furnish all the support necessary. To keep the 2" by 4" crosspieces from sagging, I wedge blocks under them to take any extra strain.

To build the strongback, I set out two lengths of 16' by 2" by 6"s longitudinally on edge with a four-foot insert in the middle to extend the length to 36 feet. Spaced seven feet apart, six 2" by 6" crosspieces tied the sides together. Before nailing in any corner braces or gussets,a 50-foot tape was used to measure the diagonals to keep it square. This done,I then marked in my exact station spacings on the top of the sideboards with an occasional diagonal check to determine these markings were directly opposite each other and that the sides were parallel. At this point the strongback can be nailed to a wooden floor or hot resin and filler compound scooped under it at several locations to secure it to a concrete floor. Nine lengths of 2" by 6" by 16" pine was used here.

No attempt was made to level the strongback other than to give it ample bearing support. By using a contractor's level to set up the stations, there is no need for a perfectly level strongback, which saves considerable time. This is another Louisiana wrinkle imported by Bill Seemann. Not only does the idea work very well, but the builder looks very impressive sighting through the eyepiece when visitors are around. These instruments can be rented, although I had to settle for a transit on this job which isn't quite as handy. More about this later.

Back on the strongback there are a few more measurements which require a bit of thought. In order to arrange all the stations so that the forward face of the forward station frames end up exactly on the station lines, and the aft face of the aft frames end up on their lines as well, and thereby automatically avoid the need to bevel the frames for an accurate setup, it is only necessary to lay down a series of marks as an instant guide. A second line is drawn ¾" *aft* of the forward station lines, and a series of lines are drawn ¾" *forward* of the aft lines. Station five is usually the dividing point here. I also sketch in another line approximately four inches in from each of these second lines to show where the 2" by 4" crosspiece is located while the ¾" strip shows where the station frame is positioned.

At this point I made up a stick cut exactly to the station spacing to check out my work and the correct positioning of the station frames later. The CD construction grade plywood (cheap) I used on this job was very warped and I had to be careful to make sure that the longitudinal battens later held the frames to their correct spacing. The stem, keel and horn pieces in particular should be cut from straight stock.

To cut the crosspieces to the correct length (17 lengths of 2" by 4" by 10' will be needed), I calculated the beam of the boat at the deck at each station and added a couple of inches to this, marking each piece by its station number. With the crosspieces nailed into position, a centerline was marked on each extreme station and a wire rigidly stretched and secured between these two points. A line was drawn using the wire for a guide. This gives a centerline for each crosspiece and a reference line is drawn out equally to each end at approximately the distance of the beam at that station. This is an aid in a quick positioning of the frames. A plumb bob dropped from the centerline of top of the frame gives an even more essential aid.

It was now time for the frames to be moved into position. First the frame the longest distance away from where I positioned the contractor's level was set up and the reference waterline (A2 in this case) leveled with a carpenter's level. The contractor's level was then positioned directly on the centerline forward of the strongback at the exact height of the reference mark. I then temporarily set up the station at the end closest to the level as a check that all was well. This was removed and each frame then progressively set up with the level serving to make sure that they were on an even plane horizontally with the plumb bob insuring vertical positioning. A notched stick hoisted the plumb bob into place. As each frame was set up, the level was swung from side to side to square the waterline used. (A reference mark should also be placed on a wall on each side of the strongback to help reset the level should it accidentally be moved.)

A great help in adjusting the frames is to secure a short 2" by 4" block to each lower end of the frame with a C-clamp for use as a temporary platform to hold the frame in position while adjustments can be made. This allows the frame to be quickly lowered and raised, or moved laterally. When the frame is correctly positioned, it is then nailed into the crosspiece using two double-headed nails on each side. (To erect the frames the total man-hour time was 13 hours for myself and a helper.) I set up two of the larger frames on my own one morning, using supporting battens and temporary nails, but the job is vastly easier with two. I built the strongback alone with no problems. All other jobs in the set up stages can be done single-handed if necessary.

After the frames are set up and temporarily secured with wooden retaining strips, fairing battens should be laid over the water and buttock lines and the frames checked for proper location and fairness. Minor humps and hollows can be corrected with the longitudinal battens later and if there are no glaring inaccuracies the stem, keel and transom pieces can be inserted and secured. The proper stations should be clearly marked on these pieces. How the stations fall in relation to these pieces is also a good indicator as to how well you have done your job. The horn piece on a long-keeled boat furnishes the proper angle for the rudder and careful sightings and measurements should

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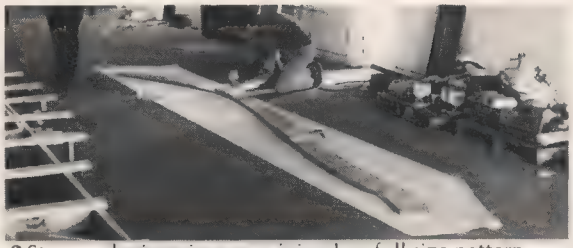
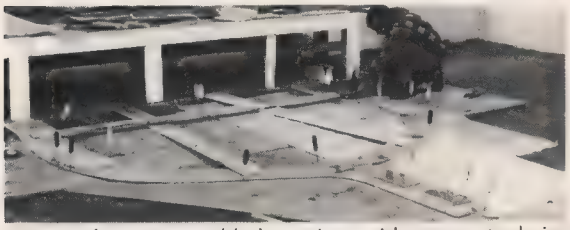
TO BUILD A BOAT: SETTING UP

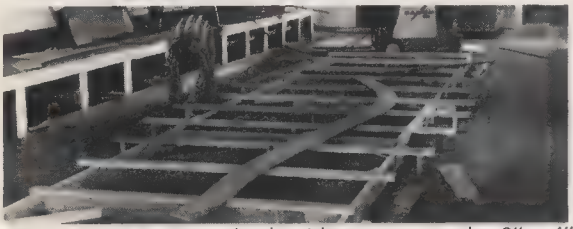
1 Strongback is squared up by measuring off diagonal dimensions.



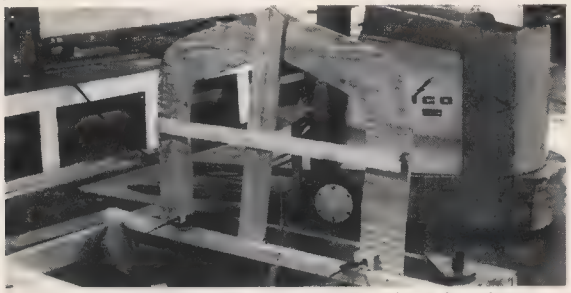
2 Stem and gripe pieces are joined on full size pattern.



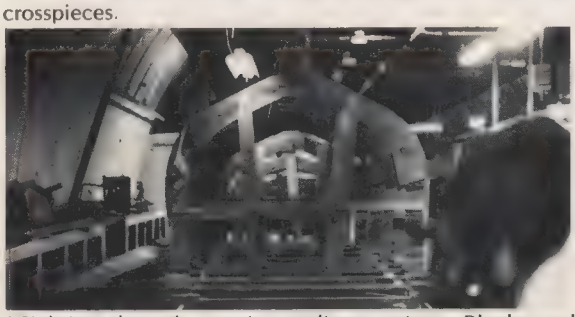
3 View of one assembled section with supports being attached.



4 Stem piece on strongback with supports under 2" x 4" crosspieces.



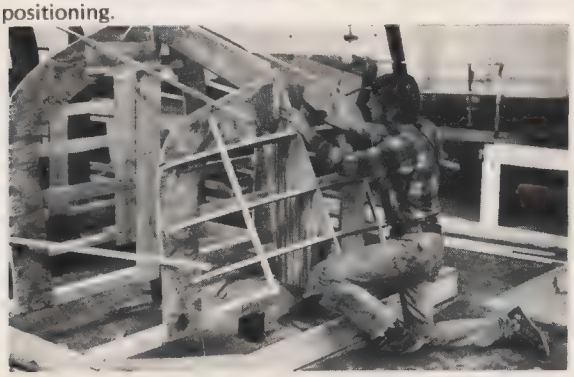
5 First section temporarily mounted in place for alignment with transit. Note horizontal reference mark on upper part of frame.



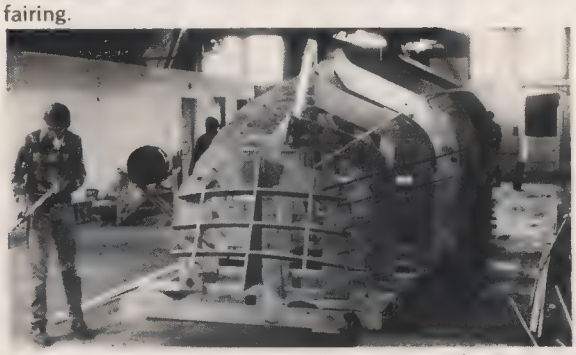
6 Sighting through transit to align sections. Blocks and C-clamps are used at lower ends to make frame adjustment easier.

7 Frames go into place with plumb bob used for vertical positioning.

8 Battens are then used to check the frame for proper fairing.



9 After proper fairing transom setup is placed into position.



10 Nearly completed setup with stem and keel pieces in place.

Under twin-jibs, Lamp Lite, *a Morgan 38, eases downwind on Tampa Bay.*

SAILING CLINIC

Twin Jibs For Cruising

For power downwind and ease of sailing, set twin jibs. It's easy.

This article was prepared in cooperation with the Annapolis Sailing School, St. Petersburg, Fla. as part of RUDDER's *advanced Sailing Clinic series. Future articles will deal with vanging, mainsheet traveller use and dinghy handling.*

Cruising under twin jibs downwind is not only aesthetically pleasing to the beholder (see left) and comfortable for the crew, but totally functional as a way of sailing before the wind with a fair turn of speed. It is especially useful on long downwind passages because the extra jib, while held outboard with a spinnaker pole, does not require the constant concentration of spinnaker sailing. It is easy to put up and take down and can be used while broadreaching as well. It obviates the use of the main, which only casts a wind shadow on the jib downwind anyway and eliminates the possibility of an accidental jibe. The full effect of the wind is concentrated forward and the boat is literally pushed along. Cruising downwind in the trades, it is possible to sail under twin jibs for days on end.

The technique of setting the extra jib is simple. It is set flying, meaning that the sail is not hanked to the forestay, but held by the tack at the stemhead, at its head by a halyard and is controlled by a sheet run "outside of everything" through an appropriate block to a sheet winch. A spinnaker pole is preferable to a whisker pole, providing more control and the ability to use the same setup for broadreaching.

Prepare the jib on deck, tacking it to the stemhead fitting, then running a

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Tacked and sheet in place, jib is hauled quickly aloft with boat headed downwind (left and above). Held by pole lift, spinnaker pole is pointed to windward and is raised so that it is parallel with sail foot. (right)

Inboard end of spinnaker pole is secured to mast fitting. Note that jaws are up.

Then, as sheet is eased, pole is swung forward. Outboard end is clipped to sheet.

Above, view from aft as twin jibs are set and filled, with boat on course. Working jib was paired with genoa. Insets (left) show sheet secured with bowline, knot arrangement used to attach tack as boat iacked extra stemhead fitting for the sail.

Troubleshoot Your Outboard's Fuel System

If your cantankerous kicker coughs, spits, misses or refuses to start, here's what you can do to cure it.

Text and Photos by Mort Schultz

Outboard fuel system malfunctions fall into that nebulous region of motor troubleshooting where the remedies range from the most elementary of techniques to the somewhat complex. Some procedures—such as checking the gas tank to make sure it's not empty or inspecting the fuel line for kinks—can be done easily by even the greenest boatman. But as the problems become more complicated, the boatman needs an increasing amount of mechanical ability up to the point where it's usually best to consult a dealer or qualified mechanic.

The troubleshooting procedures listed here will help the novice make rudimentary repairs and assist the experienced tinkerer in diagnosing the more sophisticated malfunctions and deciding whether he should tackle the job himself or turn it over to a pro.

The problems that usually strike an outboard motor if its fuel system malfunctions are four-fold: (1) the engine won't start, (2) the engine misses at slow speed and/or idles roughly, (3) the engine misses at high speed, or (4) the engine coughs or spits.

Unfortunately, the same problems can be created by an ignition system failure, and it's not always possible to pin the blame without careful diagnosis. The procedure usually followed to establish which system is causing the trouble is to remove a spark plug after cranking the engine. If the tip of the plug is wet with fuel, the system to check is the ignition system; if the tip of the spark plug is dry, then probe the fuel system.

This troubleshooting method only works if the engine won't start, and even then it is not foolproof. If, for example, the fuel supply has been contaminated with water, the tip of the spark plug will be wet, but the cause of the starting failure won't be in the ignition system.

The reason for this "neither/nor" explanation is to emphasize that if one of the problems listed above strikes your outboard, careful analysis is necessary. However, it is best to start with the fuel system, because in most instances fuel system troubleshooting is simpler than troubleshooting an ignition system.

To remedy the four problems listed above, let's take a look at each, discussing the likely causes as they pertain to the typical outboard's fuel system, then describing how to tackle them.

Engine won't start (or is hard to start)

1. *No fuel or the fuel shut-off valve is closed:* The solution is obvious.

2. *Clogged fuel-tank vent:* It is essential that this vent be kept clear and open. If air can't get into the fuel tank, a vacuum inside the tank is created. The vacuum counteracts the pull of the fuel pump, keeping fuel in the tank and starving the engine. To find out if the vent is clogged, take off the fuel-tank cap and try starting the engine. If the engine starts, you have a clogged vent.

Most outboard fuel tanks are vented through the fuel-tank cap, although some are vented through the upper-housing and fuel-line assembly. If your fuel tank cap is vented (you will see a small hole), clean it out in solvent or replace the cap.

Cleaning vented upper-housing and fuel-line assembly requires that you disconnect the assembly from the fuel tank, using the proper-size wrenches, and wash the component in a solvent such as Kerosene. When you reconnect the fuel line, don't over-tighten the nuts since this could strip the threads on aluminum fittings.

3. *Bent fuel line blocking the flow of fuel to the carburetor:* Search for and straighten any kinked fuel line.

4. *Fuel contaminated by water:* Let some fuel fall into the palm of your hand from the high-speed needle or drain plug in the carburetor bowl. In a minute or two, the fuel will evaporate. Any droplets remaining that look like water *are* water.

Dump contaminated fuel and slosh out the fuel tank with solvent. If an influx of fresh, pure fuel is not able to overcome the effects of the water, it will be necessary to disassemble the carburetor for cleaning (see final section).

5. *Clogged fuel filter:* If one item causes more trouble in the fuel system than anything else, it is a clogged fuel filter. You should make it standard operating procedure to clean filters periodically.

You'll generally find a fuel filter in one of two places (other than inside the fuel tank, which will be explained in step 6). You probably have a fuel filter at the carburetor inlet or on the fuel-pump housing (in a cover of its own). Some older models have the fuel filter contained in a glass bowl attached to the fuel line about midway between the fuel pump and carburetor.

Wherever, remove the filter and hold it up to light (Figs. 1, 2 & 3). If you can't see through it, clean it in solvent or get a new one.

6. *Dirt-clogged fuel-tank filter:* There is another filter—in the fuel tank—that few boatmen ever think about, but if it clogs it will stop an engine as fast as running out of gas.

Disconnect the fuel input line at the fuel pump and squeeze the fuel-line primer bulb. Lack of fuel from the end of the line normally points to a clogged fuel-tank filter.

Unscrew the upper housing and fuel-line assembly and pull the unit from the fuel tank. You'll find the filter in the base of the pipe (Fig. 4). Wash it in solvent and wipe it dry with a rag.

7. *Loose or damaged fuel pump:* Tighten the fuel-pump housing bolts. They may have loosened, causing the pump to ingest air and lean out the fuel mixture.

If the fuel-pump bolts are tight, the fuel pump diaphragm may have developed a hole, which is hampering its pulsating action and causing an interruption of fuel to the carburetor. Of course, if fuel is present at the carburetor (this is the case if fuel comes from the high-speed needle or drain plug in the carburetor bowl), you can forget about the fuel pump giving trouble.

However, if things are dry, unscrew the fuel pump cover and remove the diaphragm. Inspect it closely for damage and replace if necessary:

Another quick way to check the pump for damage (provided you have a portable gas tank) is to lift the tank above

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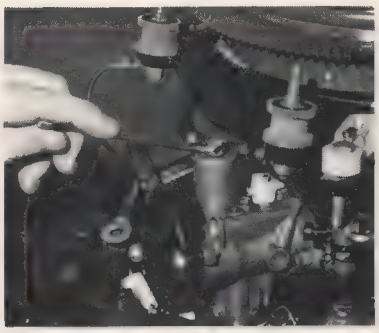


Fig. 1. Remove the fuel-filter cover.

Fig. 2. Lift cover, revealing filter.

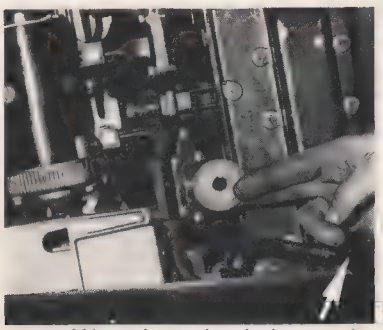


Fig. 3. If filter is located on fuel pump, detach cover (arrow) and remove strainer.

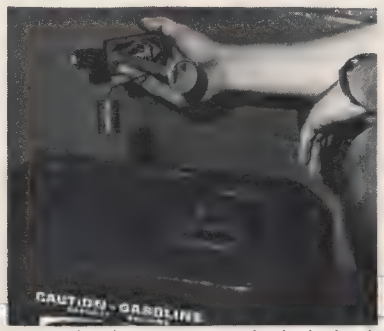


Fig. 4. If carburetor starves for fuel, check for clogged fuel-tank filter.

Fig. 5. Exploded view of carburetor.

Fig. 6. After removing fuel-filter cover and filter, unbolt float-bowl cover.

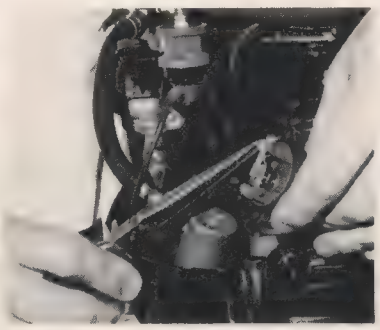


Fig. 7. After removing float-level pin, remove needle valve, check for damage.

Fig. 8. A special tool, costing about $2, is needed to remove fixed jet.

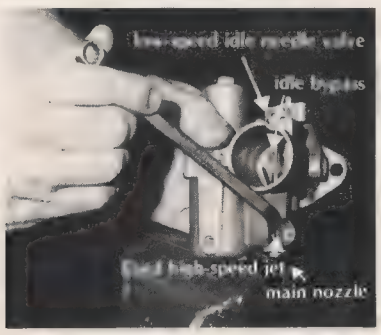


Fig. 9. Remove parts of carburetor to prepare for cleaning. Check for damage.

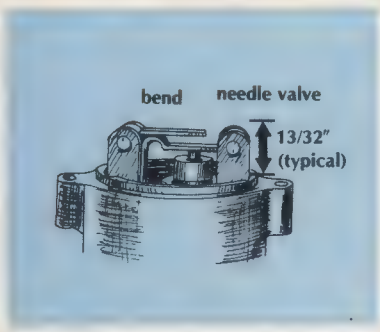


Fig. 10. Float setup common to Mercury outboards. To adjust, bend where shown.

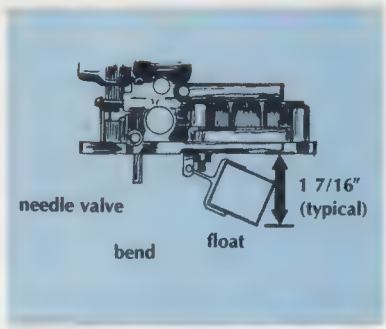
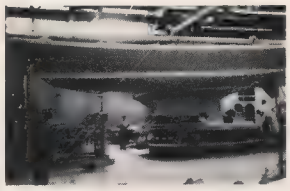
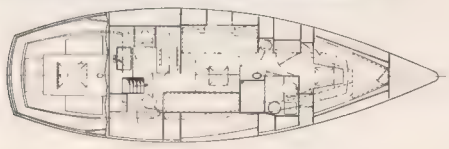


Fig. 11. Float common to OMC outboards. Bend where shown to adjust.

BOATS TO NOTE BY JERRY CARTWRIGHT

DESIGN





PEARSON 365

This attractive cruiser is the latest design from Bill Shaw and is Pearson Yacht's most recent production effort. With a 4'6" draft, a very large aft cockpit, a short, easily handled ketch rig and an oversize 37 hp diesel, the boat will make an ideal coastal cruiser for the family or sailing couple who wants to spend considerable time afloat in comfort. The interior accommodation includes a large chart table with a swing out seat. The head sports its own walk-in shower stall with a "soak basin" seat. It is a nice wrinkle and will be especially attractive for the crew who will be tied up for long periods at a marina. The basic boat carries many features usually offered as options, representing a healthy trend toward more honest boat pricing which should be encouraged within the industry. At $43,650 the boat requires a firm financial commitment, but I sailed aboard and examined the boat closely during the launching ceremony and, economic conditions being what they are nowadays, I personally felt the prototype boat was well constructed and equipped and that the price quoted represented good cruising value for the dollar.

LOA:	36'5"
DWL:	30'
Beam:	11'5½"
Draft:	4'6"
Disp.:	17,700 lbs.
Ballast:	7300 lbs. (41%)
Sail Area:	615 sq. ft.
D/L Ratio:	292.5
SA/D Ratio:	14.5

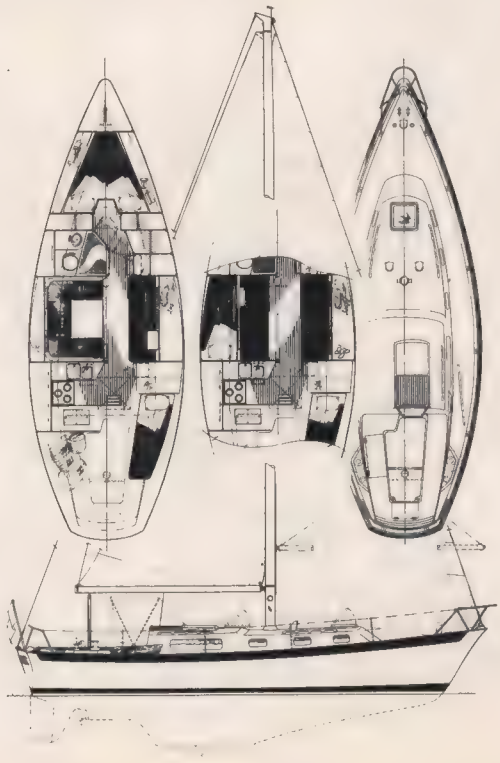
Contact: Pearson Yachts
West Shore Road
Portsmouth, R.I. 02871

HERITAGE 36

Here is the first production boat to come off the recently formed Heritage Yacht Corporation line and it's billed as a cruiser/racer. Designed by Charlie Morgan, the boat carries a high ballast ratio coupled with a whopping 12-foot beam which should handle the large and efficient double headsail sailplan adequately. Sailing performance has obviously been emphasized, a heartening trend, but the accommodation plan options are both simple and well laid out and there has been no sacrifice to comfort below. The Bahamas are right next door to Florida with the Chesapeake to the north, and drawing only 4 feet with the board up, the boat should appeal to the East Coast market. It is a sensible, straightforward design for shoal and coastal tidal waters and should hit a large segment of today's cruising market.

LOA:	36'
LWL:	32'
Beam:	12'
Draft:	4'/8'
Disp.:	17,000 lbs.
Ballast:	7000 lbs. (41%)
Sail Area:	685 sq. ft.
Power:	Volvo 25 hp MD 2B
D/L Ratio:	232
SA/D Ratio:	16.5

Contact: Heritage Yacht Corp.
12900 Automobile Blvd.
Clearwater, Fla. 33520



Jack Hargrave *continued from page 25*

sandwich and listening to language cassettes to improve his Spanish, French and Italian so he can better communicate with overseas clients and read books on cruising and boat design written in other languages.

West Palm Beach is a far cry from Gogebic, the tiny railroad whistle-stop in northwest Michigan where Hargrave was born and raised, but his background remains a major influence on his designs and lifestyle. Hargrave grew up in the Lake Superior area, working as soon as he was able in his father's boat yard. By age 15, he was running boats up to Duluth from Chicago and Detroit. Two years later he had a full-fledged skipper's license, piloting a 46-foot Matthews and painting in his spare time to earn money for college.

No sooner had he saved enough and begun school than World War II erupted. Hargrave dropped out after the first semester, intent on enlisting in the Army or Navy. Because of a childhood injury (a pal accidentally shot out Hargrave's left eye with an arrow), he was turned down by both. Undaunted, he borrowed $80 from his grandmother and set out for New York City and the merchant marine. He arrived at a time when the government decided that they were losing so many ships going coast-wise that they had to confine all ships to port until they could get escorts. Hargrave took out ordinary seaman's papers, checked in at the union hall and waited in a dollar-a-night room at the Y.M.C.A. Three weeks later, out of money, he finally shipped out for the duration.

After the war, he returned to skippering for four years, chartering a boat of his own in the summer on Lake Superior, working in Florida in the winter. In terms of careers, he was going nowhere.

Then, a breakthrough. One client became interested in sportfishing in South America and decided to have a new boat designed by the late Worth Munroe, whose father was a long-time colleague of Nat Herreshoff, built in Peru. Hargrave was enlisted to supervise construction—"Never dreaming," Hargrave recalls, "that I was going to be down there under the boat with a saw, a plane and a hammer. I spent five months down there. The boat was finally launched and she was fairly out of trim.

"The whole experience gave me some confidence. If someone of Worth Munroe's reputation could make a boat come out this much out of trim, I figured anybody could do it. I could see the business of skippering people was a dead end, so I sat down to figure out what assets and liabilities I might have. I had quite a lot of boat experience and ship experience and had always done a lot of painting and drawing, so maybe what to do was to put them together." A designer was born.

"I started studying on my own for a couple of years," Hargrave says, "then I discovered that most designers of small boats and yachts were Westlawn graduates. According to the brochures it was a two to three-year correspondence course but, heck, I was in a hurry. I finished the thing in seven months. I got 100 percent on the final exam, but I never told them the major design I submitted for the final was done two years before I started the course. I had enrolled because I wanted to measure what I had learned by myself."

The years from 1950 to 1956 were spent studying design and sailing, organizing a charter business with a partner for sailboats to the Bahamas and skippering sailboats—a 60-foot schooner primarily—10,000 to 12,000 miles a year on the Great Lakes racing circuit, the Southern Circuit and points between.

By 1956, Hargrave realized that he was getting too sailing-oriented and so took a job with Rybovich Boats in West Palm Beach to get experience building boats as well as they could be done, regardless of cost: "I was sort of an inside designer. I did design work on a 54-footer and supervised repair work. After I had been there four or five months, C. F. Johnson, a good customer, would stop up to see what I was doing. After a while, he asked me if I could design a 90-foot boat for him. I said, 'Sure.' He didn't ask me if I knew how, fortunately, but I knew the basic principles. I hadn't designed a steel boat or a boat that big, but I knew the best way to get a good education quick was to take the job first, then find out how to do it. So I drew up the boat and Burger built it. It turned out to be a good boat for everybody. Burger made money and Johnson sold it later for 40 grand more than he had put into it."

When the boat came out in 1958, Hargrave went to Johnny Rybovich and told him he wanted to go out on his own and set up a design firm. Through Rybovich's generosity in settling their accounts, Hargrave had enough money to start his own office. In 1959, he drew up plans for Burger's first aluminum powerboat and developed a reputation for excellence in that fledgling boatbuilding material, eventually designing all of the big custom aluminum power cruisers in the United States.

Paralleling that growth was the design work for Hatteras, which began with the first boat built by that company. "I got into fiberglass early when there were practically no fiberglass powerboats," says Hargrave. "We started the Hatteras 41 at a time when most people felt a flat-bottomed boat that size wasn't an appropriate design for fiberglass. I actually got the job because I told Willis Slane (founder of Hatteras Yachts) that I didn't know a thing about fiberglass. He wanted someone who was open-minded and willing to learn a new technology...When I did that first 41-footer for Willis, I didn't know if they'd ever build Boat One, but it turned out to be a very good account." Within seven years, Hatteras had $10,000,000 in sales.

From those propitious beginnings in the late 1950s, Hargrave gradually expanded his business, dabbling in the commercial field with South African patrol boats, research boats, two true trawlers and so forth, plus continuing to turn out the gold-platers and the designs for Hatteras. Indicative of his flexibility was the Hargrave-designed Daytona 41, which held the Miami-to-New York speed record for ten years. If he had developed a fault, it was in the strength of his convictions toward boat design, which some people interpreted as a holier-than-thou attitude.

Recent years have brought a mellower Hargrave, but if the steady pace has slowed at all, it is imperceptible. Hargrave claims that he is semi-retired these days, "which means that I don't work Sunday afternoons anymore." He is still very much the quarterback: "I usually do the conceptual design, all the early sketches to delineate the boats and the hull lines at least to the point I turn them over to someone else for final fairing. I usually work with other people on the staff like they're an extension of my own hands."

Design work for the Hatteras 58 Long-Range is complete, but that boat is just the first in a line of similarly styled

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Jack Hargrave *continued*

sea-going cruisers. The plug for a 48-footer is being built at Hatteras's New Bern, N.C., facility now, and Hargrave is doing preliminary work on a third displacement fiberglass hull of smaller, yet undisclosed length.

No one, particularly Hargrave, is calling them trawlers: "It's a little bit grating to hear people use the term indiscriminately to describe pleasure boats that aren't trawlers at all. Some guys take a boat that would be anybody's run-of-the-mill cruiser, build a bigger house on it, make it a little bit more ugly, and call it a trawler yacht.

"When we started the project for Hatteras, one of the things we tried to do was at least get Hatteras not to use the term 'trawler yacht.' We got them to use 'long-range cruiser.' We knew the boats would be displacement boats because a long-range boat (the 58 has a range of 3000 miles) is going to be a heavy boat necessarily because of all the things that have to be carried aboard it...You're kidding yourself if you start with anything fast. Any boat will go further when you slow it down, but a planing boat is a pretty poor boat for going slow."

According to Hargrave, we're going to see more and more displacement boats. "It's an overdue trend. It took the fuel crisis to turn things around. What we're hoping now is that the two types of cruisers (semi-planing and displacement) will coexist, and I think it'll be true for a long time to come."

As Hargrave talks, that pragmatic Midwestern point-of-view constantly surfaces, providing a connective thread throughout his designs. Even those custom 100-foot-plus aluminum motor yachts, which are impractical by their very definition, succeed in large part because of the Hargrave perspective: "We're concerned how good the hull is; the owner is concerned how balanced the stereo is."

To hear him as he leans back in his desk chair, you'd never picture him as the creator of plush baby ocean-liners ("Sometimes I wonder why people would buy them") or even fleet sportfishermen: "Fishermen want to get out to the fishing grounds fast, yet speed really isn't that important. If they were alone it wouldn't make any difference, but if anybody passes them...It takes a special philosophy in a boat to plug along and have everybody pass you."

The disdain for fad and flash provides the essence of his approach to pleasure craft: "I try to design every boat so it will look good without a lot of decoration. I don't want to depend on any painted trim lines. If it were all painted white, it still should look like a good boat. It should have its own lines, moldings that cast shadows and all look good.

"It all goes back to the same thing that everybody learns in school, that good function looks well. We try to stay away from fads. When you're designing a boat for Hatteras, you can't get into anything far out because you've got to satisfy a lot of people with different tastes. With custom boats, we might talk the owner out of some ideas he'd like that we think are too radical. We usually find that if the original owner has to sell the boat, he appreciates the fact that the boat isn't so oddball that it's difficult to sell...

"At the same time, it's only partially engineering. It's still mostly an art. You can design ship hulls and probably yacht hulls by computer, but you couldn't make one look quite as good as Nat Herreshoff or anyone with a real eye for design was able to do."

Hargrave doesn't discount computers completely, however, since they allow more exploration into a subject in far less time. On the Hatteras 58 Long-Range, for example, he has used computer programs to calculate hydrostatic curves for volume, displacement and centers, from which the stability curves were derived, then double-checked the results in tank tests in the Netherlands.

The one development that bothers Hargrave is the trend toward heavier semi-planing boats. As boatmen continue to load up the hulls with more gear, bigger fuel tanks for longer range, diesels for better fuel consumption, he claims, total weights are often twice that of the original hull: "With most of those boats, to keep selling, you've got to keep putting in the biggest possible engines, which in turn adds more weight. It's a vicious cycle and it makes for a poorer boat...Instead of being light, quick and a joy to handle, it ends up deep in the water, sloppy, wet—all the bad attributes. What's going to happen is that a lot of the so-called planing boats are getting so close to the point where they're just barely planing that it won't take much more loading and they won't be planing at all.

"You might as well start going back to an efficient hull and make up your mind you're going to stay down in the water and do the best you can. The difference in going from Miami to Bimini or on any four, six or eight-hour trip, whether you go in a boat that theoretically cruises at 20 knots but really cruises 15 and a boat that does an honest ten, isn't that much. The guy in the fast boat is putting up with so much banging around and noise and vibration that he's got to make it quick to get in and spend a couple hours relaxing and winding down to get back in the same shape as the guy in the cruising boat who's been relaxing all the time he's been out there.

"I think there's probably a market for a simple boat that would be enough to support a fairly good-size little company if it concentrated on keeping to basics and selling the boats fairly basic. If someone wants to jazz it up, he can do it himself. So many times I go down here to the marina and see a boat equipped to the gills, which was supposed to go to the Bahamas but is still sitting at the dock. I'd say, 'I thought you were going to the Bahamas this afternoon,' and the guy says, 'I can't go—my radar isn't working.' Why do you need radar to go to the Bahamas? There's no fog or anything like that. If you stand up a little bit you can almost see the Bahamas."

If Hargrave has any regrets, it's that he has been associated too closely with powerboat design: "If I had more control over the way things developed, I would have gotten deeper into sail. You get type cast like cowboy movies type cast John Wayne. We could do a perfectly creditable job in sail."

The other project he hasn't had time to do is a boat with no restrictions: "I keep thinking I'd like to turn some of our guys loose on something I'd like to see designed, such as a more-economical type, a more-sensible type of custom cruiser...It would be a lot of fun to design a boat without any inhibitions except to do the prettiest, most efficient, most logical style of boat you could dream up. It would probably be an old-fashioned sort of thing, maybe somewhat less beamy than we're used to seeing, which is partially due to customers trying to cram a 100-foot boat into 50 feet. Most boats would perform better if they were longer, if you could resist the temptation to fill up the extra length. Most could be prettier if you weren't trying to put so much accommodation in them." Finally, the realist re-emerges: "It would probably be a white elephant."

Living Aboard *continued from page 29*

own soft-soled shoes!" Socially, life revolves around the liveaboard pier which is not only a neighborhood (and an extended one at that, including stopovers as well as permanent residents) but also a kind of club.

There's no real parallel for it in suburbia where interests as well as gardens separate two homeowners. To understand it, you have to understand that a liveaboard boat is more than the confines of a hull. The living space by necessity extends over the deck area and onto the pier, bringing everyone in contact on a daily basis.

Not surprisingly, liveaboards find their children take to this informal, gregarious life easily. At Boot Key, I talked to a friendly lady named Butch Marois who lives on a custom cruiser (also named *Butch*). Over 17 years ago, the Marois family traded an eight-room house for a "two-room" boat and they've never regretted it. "Our daughter Janice has never lived in a house," Butch tells me. "She has boat friends and shore friends and makes no distinction between the two." Just a few days earlier, Janice received a letter from friends cruising in the Far East and she gets such mail on a regular basis both from "boat children" she's grown up with and from older cruising couples.

"She's met people and done things no child on land could have," says Butch. We were sitting on the open cockpit of her 40-foot cruiser, drinking warm beer ("European style," my hostess said. "We have to keep it in the bilges.") and I tried to imagine what it would be like to spend the first 17 years of a lifetime in such a comparatively small area, but Butch answered it with one question:

"How many children do you know who've swum with a porpoise?"

continued on next page

What Does It Cost To Live Aboard?

Living aboard isn't always a cheap way to get by. There are marina charges, hull insurance and the burdens of short-term boat loans as compared to long-term house mortgages. Liveaboards usually pay more for their slips than do pleasure boatmen; an extra 25 to 50¢ a foot added to the regular monthly slip rent is the going rate on the West Coast. Add to these the special expenses of any boat, for as one liveaboard puts it, "You don't have to haul-out your house twice a year and paint it." Liveaboards do enjoy many of the same benefits as homeowners, such as home/office income tax deductions, waiving capital gains taxes against the purchase of a boat that will be used as a residence, applying homeowners' tax exemptions to property taxes. The actual monthly cost of living on a boat depends on the people involved, their standard of living, the family income and the condition and cost of the vessel. We asked liveaboards in different income brackets and living in popular boating centers about their expenses—here are a few representative answers.

Cost Per Month*	Original Price of Boat	Family Income	Remarks
$3	$4000	$2000	The most extreme example. Here is a young man living on the hook near San Francisco on a boat he built himself, paying cash for the materials as he went. The $3? Kerosene for his stove and lantern. He points out that apartments in his area typically rent for $250 a month and over.
$41.25	NA	$11,000	Economy living in Honolulu on another home-built boat, a 27-foot cutter. The young couple pay $30.25 a month for their slip and an additional $5.50 a month each as a liveaboard fee.
$100	$18,000	$10,000	This 41-foot trimaran in St. Petersburg is paid off, so the young family on board have only a monthly slip rent of $88 plus $7 to $12 a month for electricity.
$132	$16,500	$25,000	The boat, again in St. Petersburg, is a new 43-foot production houseboat for which this couple in their forties paid cash. Their monthly cost breaks down into $120 for a covered slip, about $12 for electricity.
$200	$8000	$16,000	This young working couple, living in Honolulu on a small production sailboat, figure that their actual cost of living aboard is $475 compared to about $400 on land. Eating in restaurants is the culprit; costs them about $275 a month on top of their slip rent.
$210	$20,000	$18,000	This retired couple now lives in New Mexico, paying $90 a month for a small apartment. Up until last year, they lived on a 1960 cabin cruiser which cost them about $50 a month for dockage, $100 interest on a small loan for the boat, $40 for insurance and $20 for general maintenance.
$330	NA	NA	A retired couple in Ft. Lauderdale actually keep a small local apartment for storage at a cost of $125 a month, lower than the cost of maintaining their 38-foot cabin cruiser. They figure on spending $3000 a year for maintenance, $300 for marinas and $650 for insurance. Fuel and equipment pushed total expenses up to $6000 in 1974.
$555	$35,000	$25,000	The monthly charge reflects the high cost of a boat loan on a cruiser bought at 25 percent down with a seven-year payoff period. Covered dockage in St. Petersburg runs this liveaboard family $98 a month with $27 a month for electricity. The monthly payment on the loan is a substantial $430 a month.
$792.75	$75,000	$28,000	The boat, a 55-foot motorsailer, was an expensive one and the monthly payment on the boat loan runs $735 for the couple who live aboard with one child. The loan aside, their actual monthly expenses run about the same as the other Honolulu couple cited above: $41.25 for slip rent, $5.50 a month per person on board.

*In breaking down their expenses, some respondents included maintenance costs, others just slip rentals. This is detailed under "remarks."

Living Aboard *continued*

Fourth: Stay neat, clean, seaworthy, quiet and hope for the best.

Sadly, the only hassles involved in living aboard aren't doing without hot showers and ice cubes. Moving aboard is like playing poker these days, for so much depends not only on you but on three other unknown hands: the other boatmen and shore-dwellers, marina owners and the lawmakers.

The scene is a quiet cove where a small cruiser is at anchor and the two people on board are cooking dinner on a grill hung over the transom. They could be gunkholing but they're not, for this boat has been in the cove with its two liveaboards for over three months and the people on shore, annoyed and indignant, have started calling the police.

Living on the hook is a cheap way to maintain a liveaboard lifestyle, and you find people doing it in scattered ports up and down the coasts, giving up the amenities of electrical outlets, water connections and easy human contact to save monthly dockage fees. You'll see them rowing to shore surreptitiously in the early morning to fill gallon containers with water at the marina docks and to pick up a supply of kerosene to run their lanterns and stoves. Those who live on the hook fiercely defend their way of life, and those who resent them as "not paying their own way" just as fiercely attack them. The feeling is sometimes even shared by those living aboard in the marinas. "People who anchor out are freeloaders," I was told by one Florida woman.

"To avoid trouble, you should look very conservative, don't bother anyone, don't tell people you are living aboard and be prepared to move on if necessary," is the frank advice of a young man living on the hook in California. Why does he do it? "It's possible to live on a small boat anchored out for under $1000 a year if you eliminate all unnecessary expenses. Right now, I can't afford to live on land."

The days of living on the hook permanently are numbered in many communities. Fort Lauderdale and San Diego, for example, have passed ordinances limiting the amount of time a boat may spend in local anchorages in an attempt to control liveaboards on the hook and at private docks. (In the latter case, violation of zoning is cited, for a one-family house with a dock becomes a two-family dwelling.)

Even in marinas where they're paying for dock space, liveaboards often find they're unwelcome. For every marina that welcomes the permanent liveaboard, there are a dozen that don't want them. A Georgia liveaboard reports he has no problems because he is employed at his marina, but "many marinas around here don't accept liveaboards for long periods. It doesn't have to do with the local government or ordinances, just with the general prejudice against liveaboards on the premises. The attitude, I think, is due to a fair number of bums and generally undesirable types who live on boats and cause trouble for their landlords and consequently for the rest of us."

A liveaboard in a major Florida marina with a large liveaboard population concurs: "There have been movements to push us out occasionally, but it generally is accepted that our area of the marina has a much lower crime rate than the other areas. I might add that we don't abuse the privilege of living aboard by pumping out our waste in the harbor. It also is unfortunately true that there are some boisterous parties on the dock where everyone lives aboard. This shouldn't be the place you come to raise hell away from your house because this *is* your house."

Marina operators argue, too, that liveaboards don't pay their own way, that they strain facilities meant originally for recreational boatmen. This is certainly the case in a large municipal Hawaiian marina where 150 liveaboard women share two showers drawn from a 25-gallon water heater tank.

That Hawaii shower room is just one element in a list of charges and counter-charges raised by liveaboards and lawmakers in that state. The uproar centers on House Bill 1499, which calls for a ban on living aboard in any of the state's small-boat harbors (though it "grandfathers" those already aboard). On the one side are the liveaboards themselves who claim government incompetency is the cause of any problems in the harbors (such as the proliferation of docked boats which are incapable of going to sea and used solely for housing).

The State Harbors Division, on the other side, argues that liveaboards pay no real property tax, get by on a "cheap rent" (opponents point out that liveaboards in Ala Wai Boat Harbor in Waikiki pay a modest price to live in this high-rent area), pollute the waters and squeeze out recreational boatmen.

The final disposition of House Bill 1499 will be decided in 1976. But whatever the conclusion, it crystallizes a growing if still modest resentment of the liveaboard as a maverick. The liveaboards themselves may deplore it, and far from the immediate struggle in Hawaii, they ignore it, but as liveaboards proliferate and become more visible, the future may hold more House Bill 1499s. "It's coming," a few liveaboards sadly admit.

Fifth: Think about the unglamorous parts—bilges still must be pumped dry—and accept the fact that your partner may sour on boatlife.

It had a fairy-tale beginning, with a stalwart retired Navy officer in his forties, a handsome 48-foot trimaran and the inevitable pretty girl, all of whom were going to sail off into the horizon. But the trimaran is for sale and the officer is moving back on land to try to rekindle a romance that ended somewhere between a malfunctioning head and a group of curious strangers who wandered on deck to "look at the pretty boat."

"People look on this life as romantic and terrific, but a white picket fence around a cottage it's not," says the man. "The trouble is, we were so close on the boat—it was like living in a small tent. To do it, you have to be on the best of terms and love boats or you have problems." As he walked me off the dock, this unhappy liveaboard pointed out a ketch which another bachelor was living on. "*His* girl friend loves the boat," he said rather wistfully.

Most people who move on board do it after careful consideration and long trial cruises. A few, like the Navy officer in Miami, return to land unwillingly because one partner couldn't cope with the lack of privacy, close quarters and general "roughing it" that's the case on boats. A man in his thirties who lived on a 61-foot motorsailer with his wife and five children explains why after 18 months they were back on land: "I loved it; the kids loved it; the wife couldn't stand the togetherness." And he, too, adds wistfully, "I could go back tomorrow."

I could go back tomorrow. If I wanted an answer about whether this life works or not, that was it, and it came from a man who gave the life up under trying circumstances. Talk to liveaboards, ask about the problems as well as the rewards, and it becomes evident after awhile that although there are hassles, annoyances, troubles with lawmakers and water in the bilges, for the most part these are satisfied people. Maybe because it's easier to cope with everyday problems on a boat that's part dream, part mistress and part hobby than it is in a house which is simply a roof over the head. "You don't have to love a house to live in it," one woman told me, "but you sure have to love a boat to do it."

continued on page 52

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Living Aboard *continued from page 50*

A FEW NECESSITIES

A good marina: "Some marinas consider you as 'sneak aboards'," say Jim and Joyce Hostetter who have moved their Challenger 40 to what they consider a "bona fide liveaboard locale," the 28th Street Marina in Newport Beach, Cal. Two other marinas given high marks by liveaboards: The St. Petersburg Municipal, St. Petersburg, Fla., and Boot Key in Marathon, Fla. One interesting development on the West Coast is the appearance of the "condominium marina." Boat owners buy their slip space. The alternative to docking, living on the hook, is coming under increasing pressure, especially near urban areas where shore supplies and transportation are best available.

Access to a telephone: You can install a phone on board, but dock connections can be poor and affected by salt-water corrosion. Some liveaboards find that a telephone credit card is very useful when restricted to pay phones.

Post office boxes: Mail can be lost or pilfered in marina pick-up areas. In a town where the PO boxes were booked solid, one liveaboard subscribed to a telephone answering service that also offered a mail holding service—two birds with one stone.

Economy fuels: Living aboard takes a boat out of the luxury or hobby sphere in part. Practical-minded liveaboards prefer diesel over gas, kerosene over alcohol in cooking.

Proximity to a laundromat: A few liveaboards have installed small washer-drier combinations in their boats, but for almost everyone, laundromats are a fact of life.

Wintering arrangements: Living aboard in northern ports means making special modifications: weather stripping around openings, larger water tanks (when dockside water supplies are turned off), a full cover over the cockpit area for insulation and extension of living space, etc. If the harbor ices up, a marina with an ice preventer like the air bubble system (see RUDDER, September 1973, p. 44) is a necessity.

A handy galley: Liveaboards recommend adding counter space where possible, a deeper sink, a pressure cooker (you can even bake bread in one), small electrical appliances which are easily stowed when not in use and even—if there's space—an apartment-size refrigerator (fine at dockside, but this can be a drain if you spend much time underway—do install a bolt on the door for times when you go out).

Haul-out facilities: Liveaboard boats need bottom care the same as pleasure craft. Most liveaboards, incidentally, stay on their boats while they're hauled.

Rules: Helpful now that the boat is a home, not a weekend retreat. On one boat, the rules are "No bare torsos at the dinner table, no throwing trash overboard and no dropping ashes on the decks."

Communication: Not really a necessity, but talking to other liveaboards is the best source of information on modifying your own boat. One way to do this quite painlessly is by membership in Homaflote, an informal association of liveaboards which puts out four fact-filled newsletters a year. The address is Box 336, Wickford, N.K., R.I. 02852 and the membership fee is $3 a year. The editors of the newsletters are Janice and Roland Smith who know of what they write—they live aboard a vintage Huckins 40 once owned by Ted Mack. They found it, by the way, in RUDDER's Used Boat Mart!

Sail Clinic continued from page 42

sheet from its clew. A spinnaker halyard or other extra halyard is secured to the sail head and as the helmsman holds the boat downwind, up goes the jib quickly. Once the boat is sailed by the lee slightly the jib will fill; the crew making sure that the sheet has a turn or two around a winch so as not to lose control. The spinnaker pole then is positioned to windward, snapped inboard to the mast, jaws up. The outboard end of the pole is swung forward as the sheet is eased and the pole jaw is snapped on the sheet. Then the sheet is trimmed back. The pole must be horizontal so the jib is fully extended, and if the boat is sailed by the lee, both jibs will be full and drawing.

Taking down is as simple as setting. The sheet is eased and the pole is unsnapped and brought inboard, then unsnapped from the mast and stowed. With the boat again heading directly downwind, so that jib is collapsed, the halyard is released and the once-twin jib is brought down—in a hurry.

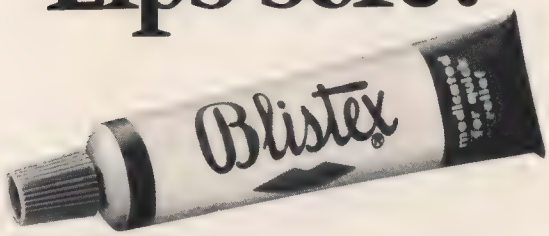
cruising continued from page 11

spoke Greek, but we got by everywhere, either with English, my high school French or sign language and sketches. The American flag was great there then—it was just before the Junta took over. It isn't good now, but we encountered such a reservoir of goodwill towards Americans that I'm confident you'll be welcome again when the Cyprus mess is settled. I've sent you a two-page list of charterers offering boats based in Greece, both power and sail, bareboat and crewed. Other readers wanting this list should write this column, % RUDDER.

q *How many slips does the new marina at Oak Harbor, Wash., have? Are any vacant?*

a Oak Harbor Marina, about 50 miles north of Seattle on the east shore of Whidbey Island, was dedicated Sept. 1974 and started filling up immediately. Some skippers from British Columbia, Oregon and California rented slips to have ready access to either Puget Sound or the San Juan Islands, both justly popular cruising areas. Operated by the city, the marina has slips for 316 boats and dry storage for 104 more. About vacancies, write Harbor Master Roger Leonhardi, 3705 300 Ave. West, Oak Harbor, Wash. 98277.

Lips sore?



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John D. MacDonald

continued from page 35

make a nice steady wheeeeeeng, gouting dirty bilge water into the Bahia Mar yacht basin."

When the pump turns itself off, Meyer says "Thank you very much and hooray."

As it turns out, John D. MacDonald, who I visited in Florida last spring, is no landlubber as a major national magazine mistakenly noted recently. He is a bona fide boatman who has cruised much of Florida's inland and coastal waters, the Caribbean and the Pacific. True, he owns no boat at the present, but the speedy *Munequita* which appears in one of his books is based on the T-Craft I/O that was his waterborne vehicle for a number of years.

MacDonald and his wife Dorothy live on an island near Sarasota. One imagines living on a key as the ideal life of solitude for a writer—the isolated house among the mangroves, a lonely beach on which to walk and ponder. It is not like that. The island on which the MacDonalds live has slowly been taken over by developers, which accounts for McGee's wrath against real estate types and MacDonald's involvement with the local Save Our Bays movement. If there is any peace on the island, it is in the quiet *cul de sac* off the main highway where the MacDonald home, a large contemporary structure stands on 12 foot pilings. Oriented toward the Gulf on the west and toward another string of keys to the north, it is a house to be envious of, a proper place for a writer concerned with seagoing matters, comfortable, substantial, open to its environment. Every part of the house, in fact, is open—living room, kitchen, bedrooms on a balcony, library with a collection of current eclectic titles. Everything, that is, except MacDonald's work room which is partitioned off at one end of the house and contains his work tables, files and a research library.

At 58, with some 66 titles behind him (50 besides the Travis McGee series), MacDonald seems a person with deep feelings about the way we live which,as he says,he finds difficult to relate verbally. Like all good writers, his communicativeness is expressed in his books. A tall man with a gentle, meandering way of talking, yet known to be very firm about his principles, he is not a tough guy, or out to prove some sort of *machismo* like certain other detective story writers. He impresses simply as a creator of fiction in which his beliefs and whatever fantasies he may have about how we can slow down our destruction are channelled through Travis McGee.

We did a lot of chatting and when the talk got around to McGee, he said that the character came out of the marine environment in which he had lived between 1949 and 1964 when the first McGee book, *The Deep Blue Goodbye* appeared. Over the years he has done so much cruising to the Bahamas and Key West and Florida and Biscayne Bays that McGee's travels aboard *The Busted Flush* were reconstructed from memory with occasional help from charts. Instead of buying them, he'd leaf through them at one of the local chandleries.

About the choice of Bahia Mar as McGee's home port, MacDonald said, "We knew Bahia Mar from having stayed at Pier 66. We used to stay there when the weather was too bad to go across to the Bahamas. But Pier 66 was too glossy for McGee, he was better suited to be across the way among the liveaboards at Bahia Mar. His boat was based on one of those seagoing barges I used to see along the East Coast. I was trying to think in terms of having a place he could live on and move at the same time. Nothing static like Nero Wolfe and his orchids."

MacDonald is not a peevish man, but he has his not-too-carefully-hidden angers. The filling-in of Florida's natural estuaries. Poorly-built plastic boats. Lowering the state's water table through excessive building. Stripping the soil for potash which uses up enormous amounts of water (86 million gallons a day by one firm) not all of which is returned to the earth. REIT's —Real Estate Investment Trusts, a condominium development system peculiar to Florida. A large national company's plant in Bradenton which puts "untold quantities of virulent, poisonous crud into the atmosphere." Instinctively, one has to be on his side.

As I was about to leave, MacDonald pointed out a family of porpoises playing in the pass between his island and the next key. They tumbled over and over and suddenly a small one, a baby shot straight up, at least six feet above the surface. It was a rare moment. I reflected that if I waited long enough I would see them again—probably off the starboard bow of *The Busted Flush* as, with Trav at the helm, she heads for another rendezvous with the corrupt world of the non-boatman.

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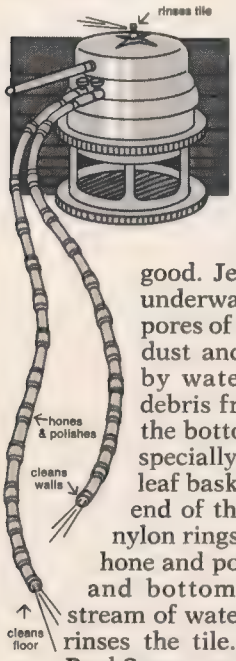

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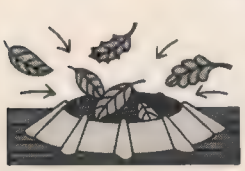

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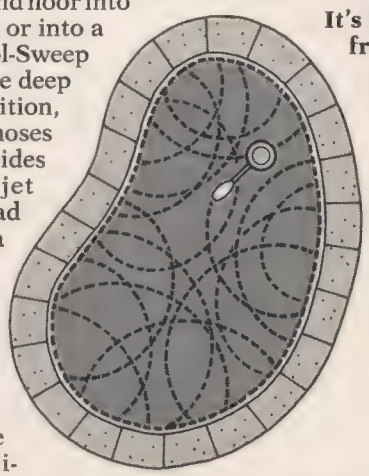

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OB Fuel System

continued from page 45

carburetor level—if the engine then works fine, the pump is broken.

8. *Trouble inside the carburetor:* See final section.

Engine misses at slow speed and/or idles roughly

1. *Manufacturer's fuel-mixture instructions not followed:* This is the major reason for this problem. Be sure you follow manufacturer's instructions regarding the mixture of fuel to the letter. Instructions are outlined in your owner's manual, or consult your dealer.

2. *Misadjusted low-speed (idle) needle valve:* Check this adjustment by warming the engine up and letting it idle in forward gear. Open the needle until the engine begins to run unevenly, which means it is running on a too-rich fuel mixture.

Begin closing the needle slowly until the engine slows down and starts to misfire, which means that is now running on a lean fuel mix. The ideal low-speed needle valve adjustment is halfway between the too-rich and too-lean settings.

If you can't get the engine to idle smoothly by following this procedure, chances are that the low-speed needle is damaged and should be replaced.

The low-speed needle adjustment is characteristic of carburetors with fixed jets only. With the fixed-jet carburetor, which predominates, the high-speed control is set at the factory.

However, if you have an "odd-ball" for this day and age—a carburetor that requires a highspeed adjustment—this adjustment has to be made. To do it, warm the engine up and operate it at full throttle.

Run the high-speed needle valve up until it begins setting itself firmly. Do not force it! Now, back the needle off one-half to three-quarters of a turn to attain a satisfactory adjustment.

Engine misses at high speed

The causes for this problem include water-contaminated fuel, a loose fuel pump cover or damaged fuel pump diaphragm. These were discussed above.

Engine coughs, spits and generally lacks power

1. *Dirty check valves:* Check the fuel pump again, but this time include an inspection of the fuel-pump check valves in your survey. If the valves are being hampered by dirt, this trouble could develop. The check valves, located inside the fuel pump housing, allow fuel to enter and leave the chamber.

2. *Clogged fuel-tank filter:* See step 6 in the first section.

3. *Poorly adjusted high-speed needle:* If you can adjust this control, do so. If not, the fixed jet can be removed during carburetor overhaul, cleaned, checked for damage and replaced.

4. *Damaged float or float level is too low:* See next section.

Overhauling a carburetor

The carburetor used here as an example is the so-called Tillotson type, which is very common on two-cylinder outboards (Fig. 5). The procedure outlined, though, can be followed with modification for overhauling other kinds of outboard carburetors.

Carburetor cleaning and overhaul is the final step in trying to solve an apparent fuel-system malfunction that is causing an engine to run poorly. Before you tackle the job, buy a replacement gasket kit from your marine dealer for *your* model carburetor. Replace all of them to prevent leaks. Generally, gaskets that are removed during overhaul and should be replaced include the bowl, fixed-jet, strainer cover and low-speed needle-valve gaskets.

Before you overhaul the carburetor, make certain that you've closed the fuel cut-off valve to prevent spillage. Similarly, place the carburetor on a cloth to soak up any remaining fuel. As you remove each part of your carburetor, look at it closely for wear. Replace worn or seemingly worn parts.

If your carburetor is in fairly bad overall shape, you should buy a rebuild kit (roughly $10) from your marine dealer. This has all parts that are replaceable, including inlet needle valve and seat, filter, idle bypass and jets. It probably also includes all gaskets.

Another thing you'll need, since you will probably be working on a fixed-jet carburetor, is a fixed-jet tool (roughly $2) to remove and install the jet. Your marine dealer can supply this.

When you've gathered the proper parts, proceed with the carburetor overhaul as follows:

1. Remove the strainer (filter) cover and filter if the filter is at the carburetor inlet rather than in the fuel pump.

2. Remove the float-bowl cover (Fig. 6). Throw away the gasket. Remove the pin holding the upper float lever and remove the lever (Fig. 7).

3. Invert the float-bowl cover. The needle valve will drop out. Inspect the tapered end of this valve for grooves, nicks and scratches. If the needle valve is damaged, replace it and its seat. (Incidentally, an indication of a worn needle valve and/or needle valve seat is a carburetor that keeps flooding on you.) Remove the needle-valve seat by loosening it from the float-bowl cover.

4. Remove the float from the bowl. If the float is made of cork and has become oil-soaked, throw it away and get a new one. Don't wash the cork in solvent. It will swell. If your carburetor is equipped with a hard-rubber float, clean it in solvent, but if it is damaged, replace it.

5. Unbolt the body of the carburetor from the engine and carry it over to your workbench. Remove the fixed high-speed jet cover (bolt) and remove the jet (Fig. 8). Unscrew the idle bypass, low-speed idle needle valve and main nozzle plug (Fig. 9).

Check every part carefully. Then wash all parts you're retaining and the carburetor body in solvent. Let components air-dry, then reassemble the carburetor in reverse order.

After the carburetor is reassembled, you have to adjust the float before putting the float bowl cover back in place. The actual adjustment specification varies from carburetor to carburetor, so you should check with a dealer who sells your model engine to see what your spec should be.

Some floats, for example, call for a setting of 13/32 inch. Others call for a setting of 1 7/16 inch. Figs. 10 and 11 show the two most popular kinds of float setups. The float in Fig. 10 has been used in Mercury outboards, and similar setups can be found on Chrysler outboards. To get the float to specification, bend the float arm gently with needle-nose pliers. The float in Fig. 11 has been used in OMC fixed-jet carburetors. Bend the float arm with the needle-nose pliers to bring it to specification.

To remount the carburetor and its new gasket, run the bolts up snugly with a socket wrench (too tight and you'll ruin the aluminum threads on the motor) and check for leaks. Better still, if you have the tools, use a torque wrench to tighten the bolts, following manufacturer's specifications.

One last adjustment, after the carburetor is completely reassembled and mounted, is the low-speed needle adjustment, which has been previously discussed.

Finally, make sure that all the gasoline has evaporated and the fumes dispersed before starting the engine again.

Sailing in Texas *continued from page 32*

embarrassed that I had not thought of it sooner. I did not choose to bare my bottom to the highway traffic on shore nor on such a damp day did I wish to get my clothes wet, so I stripped and redressed in my foul weather gear then went over the side to lighten the craft and bodily push her off.

Back in the channel again, I was in dry clothes and confident that if I had an audience for my grounding routine it was only a few shoreline dwellers who are quite used to the scene. Bay winds were about 8 to 15 and picking up with small squalls so I reefed the main. The 23 was still very responsive and cut a surprisingly high course to windward for a reefed main and working jib. A few miles of rain and wind dampened my spirits for further sailing, so I turned about for the Seabrook Channel, which was partially obliterated in fog.

Motoring through the channel I caught a sign saying "Pier Five Sea Food." Next to the water were several tables decorated with oddities better described as nautical junk. But the setup proved that even a broken head pump minus a bowl with the handle pointing skyward, all mounted on a cargo boat hatch cover, can stop a curious boatman dead in the water. Proprietor Jack Campbell took my lines and ushered me inside. Centered in the middle of the floor was an open hearth fireplace which crackled as the wind and rain beat against the windows. The surrounding tables were made of rough-finished hatch covers from a cargo boat circa 1890. Heavy hawser and nautical bric-a-brac hung from the ceiling. The slogan of the place appeared on the menu, "Where the Elite Eat in Bare Feet." Seeing I was quite impressed and the type of awed customer he likes to have, although my shoes were on, Jack showed me around.

"We even have our own shrimp boat," he explained. "Yesterday (Sunday) we got so busy here we had to send Charlie (the in-house fisherman) out for another haul of shrimp." I ordered a beer and steamed shrimp. They were given to me on a page of the *Wall Street Journal*, with the giant serving numbering about 150 shrimp in their shells. The eating of the shellfish was a good excuse to sit and listen to Jack capsule the ten-year history of the place.

The area's rivers and channels offer similar adventures into many other "one-of-a-kind" establishments such as Pier Five, where southern hospitality and a respect for boatmen reigns.

This is not always true, however. I would rather try to make an unexpected landfall on Cuba than to pop in on the massive Galveston Yacht Basin. Possibly coming by water one gets a better reception. Fred Maudlin and I drove into the marina on a Monday night about 6 p.m. to have a look at the giant facility that offers 400 covered berths, dry storage for 180 boats and 120 sailboat tie slips. As we stopped to get out of our car, a pickup truck which had been tailing us swooped alongside and in no uncertain terms ushered us away.

Obviously, if you want to wander about Galveston it might be best to do so along its 32 miles of beaches or visit the many free fishing piers or stroll along the 17-foot-high seawall.

The Texas Gulf Coast boating scene is aptly symbolized by a catamaran we saw racing over the weekend. Intent on competing with a new class of catamaran cruisers, she had lost her mast three times. Saturday she lost it again. Sunday she was back to watch the next race without a mast. Dismasted boats are ugly and a catamaran is uglier than most, looking more like a motorized swimming raft, but the name on her transom was all Texas: *Try Again.*

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Tale of Two Cities *continued from page 36*

numerous cuts and bayous off the main channel provide good fishing.

The grass flats of Lake Borgne, another prime angling spot, can be reached through Unknown Pass, through the very broad and deep Chef Menteur Pass (at the village of the same name), and through the cut at marker 7, southwest of Chef Menteur.

At the junction of the Intracoastal Waterway and the Mississippi River/Gulf Outlet Canal just east of the city, marker numbers change to the Gulf Outlet system, beginning with No. 117 and rising as you proceed westward (away from the sea for inbound ships). At this point, I began to see some of the ocean-going giants that make New Orleans one of the shipping centers of the world. Most of the behemoths I encountered drew more water than the 16'9" length overall of the little Glastron that took me skipping over their wakes.

A few words about navigation around ships of this size are in order: the rules of the road may apply equally to all craft powered by machinery, regardless of size, but *never* try to push your right to make way in front of one of these massive boats. Moving one of them in the narrow confines of the inter-city canals must be like trying to guide an elephant down a tightrope—they are simply unable to maneuver adequately to allow you all the space you might legally deserve under the rules of the road. Thus, always keep an eye on large craft underway, and try to anticipate their course and the amount of space they'll need so you can stay well clear.

The big ocean-going tug-pushed barges have nearly the same problems as the ships, so give them an equally wide berth. Remember that in order to make what seems like no bend at all for a runabout, a football-field-long barge may require the entire breadth of the canal. Stay clear of the prop wash on all the giants, too. Its force can scoot a planing runabout sideways several feet, enough to smack you into a seawall if you try cutting things too close at high speed.

On the eastern edge of New Orleans proper, the Gulf Outlet Canal intersects the Inner Harbor Navigation Canal. Chart No. 11088 provides adequate detail for cruising through the area, though more specifics are available from Nos. 497 and 878-SC. A turn south at this point will bring you to the locks that enter the Mississippi River, two NM distant. I had hoped to cruise the Father of Waters, but gasoline barges had the locks tied up and no other craft are permitted in the locks when fuel barges are locking through. I also learned that at times the locks may be jammed with ocean-going traffic for an entire afternoon, so anyone going through should be prepared to overnight in the river, something of a problem since there are no nearby small-boat marinas.

Day cruising the river can be rewarding, however. In the downtown region, the width is 2200 feet and the depth better than a hundred feet, so navigation problems are minimal—unless your prop goes head-and-head with one of the many drifting logs or other debris floating just under the surface. By cruising west, boatmen can complete a circuit of the nine-mile-long bend past New Orleans waterfront. Along the way are some of the busiest docks in the country and some of the muddiest water—the Big Muddy seems to be carrying away half of Kansas at this point as it boils thickly toward the Gulf.

The famed French Quarter lies on the starboard side at the first major bend beyond the locks. You can tie up briefly along the seawall and stroll to the French Market, right on the riverfront, to sample some of the well-known beignets (French doughnuts) served in the open-air cafe there. If you're inclined to something more substantial, the outstanding restaurants in the Quarter are only about four blocks away.

Back on the river, the foot of Canal Street (widest in the U.S.) is marked by the towering International Trade Mart, topped by the largest revolving lounge in the world. Moving upriver, you'll pass under the Greater New Orleans Bridge, and about four miles west you'll find Audubon Park on the starboard side. The refurbished zoo there is a pleasant spot to while away a hot afternoon. From the park, you can walk back towards the downtown area along Magazine Street, passing through one of the greatest concentrations of antique shops anywhere in the south.

Somewhere along the waterway you may be lucky enough to trade whistle signals with the *Cotton Blossom,* a rebuilt stern-wheeler. (This and other riverboats provide daily tours of the Mississippi, convenient for the boatman who does not want to get involved in locking his own boat through into the river.)

My own cruise route took me northward on the Inner Harbor Canal. The canal is interesting for its vantage point of big-time shipping, though it might seem a bit unpleasant to those inclined to more pastoral scenes. Smoke and the smells of manufacturing hang in the air, the water is murky. In addition, a pair of drawbridges block the route, and the operators are sometimes slow to open for pleasure boats.

All this changes when you enter Lake Pontchartrain, at the canal's northern end. The 610-square-mile lake is the playground for everyone who enjoys the water in New Orleans. Just outside the canal, I passed through a fleet of two dozen boats working a big school of seatrout. A bit west, Pontchartrain Beach Amusement Park offers swimming, roller-coasters, sky-rides, and lots of other entertainment (be sure to use docking areas well away from the marked swimming boundaries).

Two miles west lies the New Orleans Marina, largest in the metropolitan area. The man-made harbor here is easy to enter in any weather and has plenty of width and depth for even the largest cruisers or sailboats. The harbor is home to the New Orleans Yacht Club and the docks are usually at capacity, so it's a good idea to arrange for space in advance. Complete repair services, fuel, food and supplies are readily available.

Downtown night life is a 20-minute cab ride from the docks. If you request, the cab will pass by the massive new Superdome on the way. The nine-acre coliseum, largest in man's history, is due to open this month. It's an awesome sight, even for those not much interested in spectator sports.

In the French Quarter, Bourbon Street is the center of all the action. Anytime after sundown it's wall-to-wall music, gift shops, bars and restaurants, strip shows and dancing in the streets. Lots of fine hotels are within walking distance if you don't plan to live aboard your boat.

If you fly into New Orleans, as most do these days, you'll find both power and sailboats for rent in the nearby suburb of Kenner on the route into town from International Airport. Rates for a 16-foot jet-drive runabout run in the neighborhood of $42 a day ($10 higher on Fridays and weekends), plus a $50 deposit. Spring and summer are the busy times, and it's wise to make a reservation at least two weeks in advance. (Write Sportsman's Marine Rentals, 715 Airline Highway, Kenner, La. 70062, phone No. 504-722-2821.)

Just west of New Orleans Marina lies the favorite seafood center for all this seafood-mad town, and waterfront restaurants stand shoulder-to-shoulder along the beach. Specialty of the area is softshelled crabs—I enjoyed a heaping platter with hushpuppies and beer for under five dollars.

The endless variety of Pontchartrain's shores tempted me to keep exploring. To the west, 20-mile long Lake Pontchartrain Causeway splits the lake in half—beyond the causeway the water turns fresh. The miles of bayous and rivers along with ten-mile-wide Lake Maurepas (access through Pass Manchac, 18 NM northwest of the marina) provide endless additional cruising opportunities. But in late afternoon the thunderstorms that had been threatening most of the day began to move in from the southwest, accompanied by a howling wind out of the south. With better than 20 miles between me and homebase, I felt it was time to turn back.

The lake's south shore provided a lee as I zipped by the many fine homes on Lakeshore Drive. Beyond South Point, some 15 NM northeast of the marina, the railroad causeway continued to provide a windbreak. Once I turned east and passed under the Interstate 10 causeway, however, the full force of the winds caught up to me. By the time I idled into Eldon Blancher's canal, ugly, whitecapped seas were blowing water ten feet into the air as they crashed against the seawall—Pontchartrain lives up to the bad side of its reputation as well as it does to the good side.

However, because of the remarkable variety of alternate routes that intertwine throughout the bayou and lake country all around the city, it's hard to imagine a day that would not provide protected water and pleasant cruising somewhere around New Orleans. All this and Creole cooking, too.

WHAT TO BRING

Runabouts cruising New Orleans should be equipped with tops and side curtains to protect against the frequent and sudden showers that are an everpresent part of the bayou country. Rain gear for the crew will be useful, too.

For shoreside wear, you can get by on sports clothes alone, unless you want to dine in style at some of the fine downtown restaurants. Winter and summer, temperatures are Florida-like, though in winter the occasional cold snap will require an insulated jacket. A good pair of walking shoes is your most important piece of apparel in the French Quarter, where some of the streets are completely closed to all but pedestrians much of the time.

Charts: National Ocean Survey Chart No. 11088, Lakes Pontchartrain and Maurepas, covers the city itself. N.O.S. No. 11371, Lake Borgne and Approaches, outlines the entry to the ICW and much of the top fishing east of the city. The ICW itself is detailed by chart No. 878-SC, while the Inner Harbor Canal and access to the Mississippi River are shown on chart No. 497. A good publication showing all of these areas in large scale is *Mississippi Delta and Lake Pontchartrain Areas Bookmap*, $2.95 from Bookmap Corp., 8927 International Dr., San Antonio, Tex. 78216.

For more information, you can write the Greater New Orleans Tourist and Convention Center, 334 Rue Royal, New Orleans, La. 70130. A good general guide book, *Welcome*, is available from Welcome, Suite 608, International Building, 611 Gravier St., New Orleans, La. 70130.

MARINAS

New Orleans Marina, West Lake Shore Dr., New Orleans, La. 70113, is the largest and the closest to town. The Gulf Outlet Marina, Chalmette, La. 70043, is located on Bayou Bienvenue, east of the city. Chef Menteur Marina lies on the pass of the same name, off the ICW northeast of the Gulf Outlet Canal, in Chef Menteur, La. 70126.

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Abacos Cruising *continued from page 23*

bag that is convenient to carry ashore. The five of us dined well; midway through the eight days we took one bag ashore, returned to Fort Lauderdale with another and left not a trace of our passing at sea but our wake.

This was hull Number One in the line and so there were things that could be adjusted or changed. One such item would be to have the oil dipsticks of both engines inboard so the oil level in both engines could be checked from the same position. Most such items were in the getting-to-know-you category that could be routinely amended, and on this cruise they did not affect the pleasant ambiance of the boat. The charm of this vessel is that it builds and maintains a pleasant mood, so by the time we crossed the Gulf Stream and sighted West End some five hours and 15 minutes out, the boat was an old friend.

When West End came over the horizon, it was off our starboard bow, so the Gulf Stream had set us further to the north than we anticipated. It was an easy crossing but we had enough touch of wave and thrust of current to remind us of the tremendous latent power in the Stream. It is power that comes not only from the spinning earth and the steady trade winds, but as Rachel Carson wrote in *The Sea Around Us*, "The energy of the Stream off southern Florida probably results from the fact that here it is actually flowing downhill." The surface of the water off the Florida Gulf coast is seven and one-half inches higher than at St. Augustine, and off the coast of Cuba, about 18 inches higher than off the mainland.

Power is in the water of the Gulf Stream. When the sun shines, color is the key to the waters of the Bahamas. The Banks are a flat-topped, six-mile-high mountain of carbonate material deposited on the ocean floor. In the delicate balance of coral reef structure, living coral and other reef organisms interacting with sunlight and warm shallow water maintain over millions of years their living environment close to the surface and the sunlight. And sunshine in the clean shallow water is broken up by the prisms of wave forms. Reflected from the sandy bottom, it vibrates with color.

About a half mile off West End we turned on the depthsounder. The water was a bright light blue, the depth 45 feet. Between us and the sandy shore was a brilliant pattern of blues, greens and golden browns. At 25 feet that water was bright aquamarine; at 15 feet, brighter and lighter. We crossed from the brightness to a dark green patch over grass on the bottom. The depthsounder stayed at 15 feet.

From here on, all the while we were on the Little Bahama Bank, we found the depthsounder a great assist. We used it not only in piloting but as a learning tool to correlate color of water to depth of water. In the channel just outside the marina at West End, we passed over a shallow spot that read five feet on our sounder. The water was very clear and the bottom looked very close. We proceeded slowly and with caution. The depthsounder was most reassuring. It was not until we met another shallow spot next morning that we wondered whether the five-foot reading meant five feet under the transducer or five feet under the keel. When we checked it out, we found that five feet on the depthsounder meant five feet under the transducer and three feet under the keel.

We entered the yacht harbor and made fast at the customs dock. In a while we were boarded by Customs Officers and cleared in an easy and cordial fashion. From Fort Lauderdale

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to the dock at West End had taken six and one-half hours. The next anchorage on our way over the Bank was at least four and a half hours away, too late in the evening for adequate visibility.

The Yachtsman's Guide to the Bahamas mentions early in its pages that pilotage on the Banks is done entirely by eye and the depth of water determined by its color. Although we were anxious to move on, it did not seem logical to reach our next anchorage in poor light; so in the interests of becoming experts in Banks pilotage more slowly, we stayed over and went swimming.

Next morning we left the marina at nine, rounded Indian Cay and entered the clearly marked channel onto the Banks. Even at this hour in the morning it was difficult to judge water depth by color; looking toward the sun was more difficult. It was easy to see why exploring strange waters on the Banks is best done when the sun is high and the sky is clear.

Our course was toward Barracuda Shoal, then north of Mangrove Cay toward Great Sale Cay 40 miles ahead. The bottom was visable, but the ripples on the surface made objects on the bottom appear as flashes of color, at first blotches of black and brown, then red and tan. There were undulating darts of gold. The green shadows we knew must be grass. Mile after mile, the depthsounder read 11 feet. We could have stopped and with our snorkeling gear searched the bottom, but we kept on to Allen-Pensacola Cay, a run of 70 miles. We entered the anchorage slowly, found only one yacht inside, the first we had seen in the past 40 miles; we were in the Abacos.

We climbed into the inflatable with our snorkeling gear and remembered to bring along an underwater viewer. It was a ready-made gadget—a cut-off cone of stiff black plastic about a foot high, small handles at the top, a clear plastic oval about ten by twelve on the bottom, six inches open at the upper end, big enough to look through or aim a camera.

You can't see more through the viewer than can be seen snorkeling, but moving along in the outboard-powered inflatable or towing the inflatable behind the Meridian, we could cover a lot more of the bottom. It was surprisingly clear.

The black flashes seen through shallow water, usually near anchorages, were clusters of black spiny sea urchins. Light brown color in a sandy bottom was a thin grass cover. The dark green patches that looked from above like the shadow of a small cloud were heavier grasses, often only a few inches high. An occasional red dart flickering through the water—small brain coral. Uneven undulating areas of gold or brown were the mound-homes of crabs or burrowing shrimp, a few inches or a few feet across. A flitter of light tan might be a sand dollar, a darker one might be a large starfish.

In the shallows, algae, sponges, grasses, corals were in abundance, but on the track we followed over the Bank the bottom was mostly sand. We saw a few fish close to the islands, but only porpoises out on the Banks. If there were other fish there, we saw none. We did catch one king mackerel seaward of Whale Cay. Nothing we saw through the viewer explained what remained for us a mystery—the fish muds.

The *Yachtsman's Guide* prepared us for the fish muds. Without its information they certainly would have been a source of concern. We saw the first one about 15 miles onto the Bank. Off to port was what appeared to be a sand bar, a bright light sandy area about 200 yards long and 50 yards wide. The chart showed two fathoms. The Guide describes a

continued on next page

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Abacos Cruising *continued*

fish mud as common to this area and explains the cause as "an enormous school of fish feeding on the bottom and stirring up the marl."

Our first crossing of a fish mud evoked a sharp conflict between intellect and instinct. The water had an opaque quality. We did not slow down, but we were glued to the depthsounder. It stayed at 11 feet. We thanked the Guide for its information, but the fish muds piqued our curiosity.

Shortly after coming on the Banks, our depthsounder showed six feet; the chart indicated deepening water ahead and we moved the throttles up to half speed. Our wake sounded strange and we turned to see that it had moved up closer to the transom, was breaking more and the boat was responding as motorboats do in shallow water. There was no mud or sand in our wake and we commented that since our wake was clear, the bottom must be pretty hard. When we came to the fish muds an hour or so later we found it hard to believe that if in shallow water our two big propellers stirred up no bottom, a school of little fish could do so.

There is a charm to the Abacos, but also a sense that they are in fragile equilibrium. Perched on the edge of the reef between the ocean and the lagoon, they are a delicate balancing act of nature. The people native to Green Turtle Cay and Man of War have a delicate balance to their way of life, though their roots go back to the American Revolution. A small change in their social fabric could mean a very considerable difference in their life style. They seem to be living on the edge of this change—something that is occurring in all new developing nations.

New Plymouth on Green Turtle is a friendly town, rooster calls, baby cries and the sounds of TV programs filtering through the narrow streets. The rectangular homes are bright with color—lavender, pink and yellow green. Complex TV aerials high over some homes are a functional reminder of the heroic metal sculpture in many urban plazas and parks and a reminder, too, that news travels fast in the Abacos. Many homes have a CB on through the waking day, a party-line telephone open to all. The islands may be remote, but human voices are near and helpful.

Children walking home from school, tradespeople, passersby are all ready with a greeting and a friendly exchange. The cashier in a market was not shy about asking where we came from, where we were going and what we were going to do there. When we countered by asking, "What do most people do for a living here?", she was open and thoughtful in her reply:

"That's a good question. There are fishermen who can make a good $50 a day when they fish and carpenters who can do almost as well when they build. There are caretakers for the homes of foreigners and then there are the merchants in the town stores. But many of the young people leave New Plymouth to go to Nassau."

We had an excellent dinner at the Old Plymouth Inn in the center of town and visited Bluff House, run by young people from the States who are combining local charm with hotel management school efficiency.

Two harbors open at right angles to the narrow inlet at the entrance to the channel of Man of War Cay. To starboard is the quiet, well-protected East Harbor. We went to port toward the town, stores, docks, fuel and shipyards.

There was a variety of cruising craft anchored off and at the docks, but what caught our eye in the welter of tropical color was the rosy mahogany planking of a wooden boat being built in the William Albury Yard in the center of town. It was a delight to behold after seeing the fiberglass fleet in the harbor. After we had docked, we walked over to see its shape, smell the wood and watch the builders working away industriously.

A little notice tacked on a shed nearby indicated the boat was being built to enter the Out Island Race, that it was a community effort and donations would be gratefully received. It was an Abaco version of *Intrepid's* America's Cup challenge and a fine way to get a traditional wooden boat into a race.

The hull was planked. Work was going on topside while underneath two men were sliding a lead keel into place. After a while, one of them turned to us and graciously answered our questions. The lead keel weighed 500 pounds and would be through-bolted with bronze bolts. He guessed there would be about 2000 pounds of lead pigs for inside ballast. The boat was 29½ feet long, 25 feet on the waterline and 8'8" in beam.

Builder Emerson Albury seemed willing to talk.

"The lines for the boat just come out of our head. We make a half model. We could make all the frames and set the boat up, but this time we just made four stations and set them up, because we thought we might do a bit of changing. This boat is supposed to go in a race in the Exumas, a work-boat race.

"You can't put a fancy yacht in there, a racing machine, but you can fair out your lines. This isn't identical, but it's a typical Abaco work boat. We got the lines off a smaller boat. Then I had to fair it out until I thought it looked right.

"The frames are Madeira, a native hardwood, actually mahogany. There isn't enough left on this island, so we had to go to Abaco. The wood in the keel is hard yellow pine from the States and a few pieces of local dogwood and horseflesh. The planking is Philippine mahogany.

"The mast is Sitka spruce. It will be forty-eight feet; that's right to the bottom of the hull, not to the deck. The boom will be about twenty feet.

"It's a sloop rig, but we can't have a genoa. The jib can only lap the mast a little bit.

"The boat should be overboard within two weeks. I don't know just when we started, but it's been maybe six men for eight weeks. I'm not definitely sure on the time, because I haven't kept track of it. Another fellow in the yard takes care of that, the paper work.

"I've been doing this kind of work ever since I had strength enough to do it. I've been in this yard over thirty years. There has been work going on here since 1888. The owner died about two years ago. His father worked here before him and his adopted son and myself are still carrying on."

A lifetime spent building boats is common to many of the men on Man of War. Up the hill in a shed behind his home, Maurice Albury was building an Abaco sailing dinghy. This was an 11-foot hull, but he also builds 12 and 14-foot models. Some are for local use, but most are shipped off to Nassau or by freight boat to Palm Beach, Fla. Visitors to Man of War stop by his shed, become fascinated with the distinctive character of his dinghies and order one for shipment abroad.

An 11-foot dinghy takes Maurice about six weeks to build; a 14-footer, about eight weeks. He goes from one size hull to the other as the orders come in. Maurice, who is 67, says every year he does less and less, but there is still demand for the boats and he always has three or four waiting to be built.

Maurice built his first dinghy about 50 years ago. He learned the trade as a boy watching his Uncle Will. Then, even as now, dinghies were built in the backyards on Man of War Cay. When Maurice was 16 he decided to build his own boat. Just about

this time another uncle died and left Maurice his tools. Maurice's first dinghy was built on almost the same spot he works today.

Speaking with Emerson and Maurice Albury gave us fresh insight to the old-timers who just had the lines of a hull "come out of their heads." Hull form is an integral part of the way they work the wood they use. The frames are natural forms in the trees they cut. Wood is worked to a curve; changes in hull shape occur at a certain plank. Hull form has been partly a function of material and a man's feel for it, eloquently shown by Maurice working in wood with his simple hand tools.

We returned to Fort Lauderdale on time and in our eight-day cruise did everything we planned. The visit to Man of War Cay was a rare bonus, a glimpse into the past. How long ago was it that we had burgeoning shipyards building in wood right in New York City? Nevins at City Island near my home was one of the best and the images of skilled craftsmen at work there is still in the mind's eye: Neils the lofter, Sam the caulker, Ernie the carpenter, Bill the painter, and Nick in the machine shop.

Watching the Alburys building boats on Man of War brought the old City Island scene back to mind. Well, the times they are a'changing, but you can still get afloat in the Abacos for a pleasant cruise in clean water and sunshine though the boat you're aboard is very apt to be built of fiberglass-reinforced plastic. On board our Meridian, it didn't seem to matter.

Guidebooks and Reference Books

Cruising Guide to the Abacos, by Julius M. Wilensky, $10.95, from Caribbean Sailing Yachts, Ltd., Box 491, Tenafly, N.J. 07670. Published June 1975, this is the most detailed and thorough work ever done on the Abacos. Includes approaches to the Abacos. Soft cover, 8½" by 11", with a complete set of original charts and aerial photos in color.

Yachtsman's Guide to the Bahamas, edited by Harry Kline, $4.95 plus $1 postage, from Tropic Isle Publishers, Inc., Box 866, Coral Gables, Fla. 33134. Soft cover. For 25 years this has been the standard reference in the Bahamas. I have never sailed anywhere in the Bahamas without it. Book contains Mr. Kline's sketch charts and offers a list of all of the charts you'll need.

Sailing Directions, The West Indies, Vol. 1, Publication No. 21, $5.50, from Defense Mapping Agency, Hydrographic Center Depot, 5801 Tabor Ave., Philadelphia, Pa. 19120. Though written primarily for commercial vessels having deep draft, it has much useful information for cruising boats.

Bahamas Handbook and Businessman's Annual, by Etienne Dupuch Jr., $5.95 plus $1.20 postage to USA. Soft cover. Intended primarily for businessmen but gives vital statistics and miscellaneous information of general interest. Contains advertising.

Bahama Islands, by J. Linton Rigg, 4th edition revised by Harry Kline, $12.50, Charles Scribner's Sons, N.Y. Hard cover. This was originally published by D. Van Nostrand Company, Inc., in 1949, with additional printings in 1951 and 1959. It retains much of Linton Rigg's love and lore of the pioneering cruising guide and has Mr. Kline's updated information and sketch charts, with no advertising to distract continuity.

Boating in Paradise, by Lloyd Wilson and James Landfried, $3.95, from Islands Unlimited, Inc., Box 1442, Melbourne, Fla. 32901. Soft cover. Mostly on hotels, but has marina directory, resort directory, air travel index and other general information. Contains advertising.

—Julius M. Wilensky

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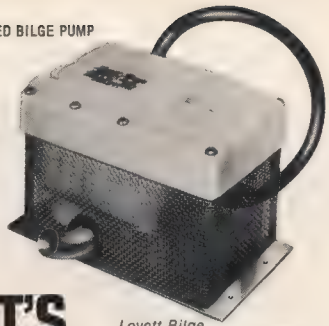

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Starboard Tack

by Bill Sorem

GO FAST, YOUNG RACERS

What are you doing to make your boat go faster, handle easier, be more comfortable or just sail better? This month we'll discuss some of the things we can do with our small offshore type boats to do just that. As an aside, "offshore type" seems to be coming an accepted way of referring to sailboats with living accommodations. USYRU and others struggled have with an appropriate designation for these boats. One-design boats are well identified. The rest of us have been called ocean racers (midget or otherwise), cruising racers etc. It appears that the International Offshore Rating Council and USYRU are going to refer to this diverse group as "offshore type." Makes sense even for those of us who are primarily on inland lakes.

How many times have you heard, "Wish I knew how to make my boat go faster." The best advice I've heard is to polish the nut on the tiller. By this time of year even dedicated sailors can slip into sloppy helmsmanship, lazy wind watching and lack of general concentration. We get lackadaisical and let the boat sail itself.

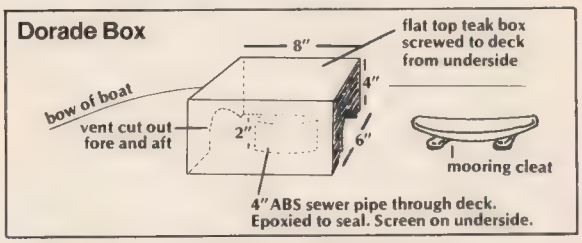
Fun sailing with friends aboard can be a good time to check and experiment. Observe sheet leads and tension under a variety of wind and sea conditions. Does the jib luff evenly? Check the yarns on your main (a good idea if you don't already have them) and watch how they break as the wind changes. Experiment with halyard tension, traveler position, shroud tension etc. Have someone else steer and go up on the foredeck to look at sail shape. Watch the draft change as the lines are adjusted. When you're at the helm check the balance and feel of the tiller. What's it like when you are right in the groove? Watch what happens as your guests move around the boat—a good indication of sensitivity to weight placement and movement on the race course. Another way to sharpen helmsmanship is to skipper a dinghy or board boat, preferably competitively. I keep forgetting how forgiving my 25 is until I take the tiller of a smaller vessel.

Wind indicators are important on any boat. A masthead apparent wind indicator is great if you have one. I don't, so I depend on my shroud and backstay tell-tales. Magnetic recording tape makes a sensitive indicator and it's cheap. For maximum sensitivity mount it on a plastic disk around the shroud. Yarn still seems to be the best for indicating air flow over the sails. I have three sets of yarns on the genoas, three on the main and five on the spinnaker pole. I spotted the pole yarns on a big boat in the Chicago-Mackinac last summer. The yarns help to trim the pole so the air is flowing freely over it and into the chute as smoothly as possible.

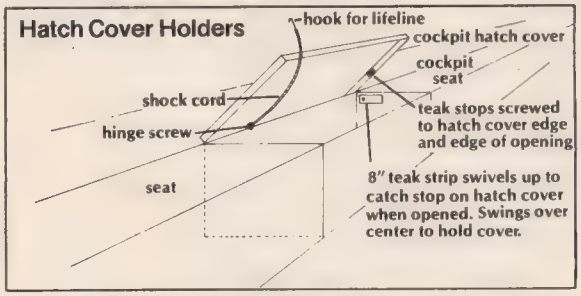
The big racing machines can be sources of good ideas for our little boats. Even though they are lots bigger, the 60-footer is also trying to use human power as efficiently as possible to trim sails and go faster through the water. One of the one tonners at Newport last fall used a two-part tackle to trim the genoa cunningham instead of adding another winch. Seems that a lot of us forget about simple tackle and bemoan the missing winch. When I returned home I found I already had a two-part tackle on the foredeck. Unhook the block for the spinnaker pole downhaul, attach it to the cunningham line and snap the foreguy shackle to the pad eye where the block was. Instant double purchase. This requires a change when you set the spinnaker but it's a simple one.

Another idea from the big boats. A light nylon line laced through the toe rail and over the lifelines not only makes the boat look classy, but it really helps in keeping a big jib from sliding overboard. Loop a couple of nylon or cotton webbing straps through the toe rail or lifeline stanchion base and you can secure the sail on deck until you are ready to hoist or send it below.

How do you feel about psychological warfare? One of the skippers in the Chicago-Mac made certain his racing competitors knew where he expected to see them. He had a wide angle mirror—like waterski-towing powerboats use—mounted on the cockpit bulkhead with the other instruments.



How about making the boat more comfortable? Ever try to put a vent on the foredeck of a small boat? It's guaranteed to be in the way some time or other. One of the skippers in the Lake of the Woods Regatta solved the problem simply. He made a small Dorade box of teak (about 6" x 8" x 4"). A small piece of 4" ABS sewer pipe goes through the deck. Screen is on the inside and the pipe protrudes about 2½" above the deck. The box had vent holes cut at the deck fore and aft and was positioned ahead of a mooring cleat. With the flat top, you stand on it instead of tripping over it. If you install a foredeck vent, make certain there is a vent aft so the air can circulate when the boat is closed up. Through the drop boards is a convenient way.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Cockpit hatches have always been a nemesis. Seems as if I have a permanent crease in my skull by now every year. I've tried shock cord looped through the hasp eye but it's always in the way. Teak strips swiveled under the hatch to swing up and engage a small stop screwed to the hatch underside solve the problem. Another method is to use a pice of shock cord secured to the existing hinge screws under the cover. The cord dangles in the locker when the hatch is closed and stretches across the skull creasing edge to hook on the lifeline and hold it open.

Bill Sorem is a member of the Board of Governors of MORC International. MORC sailors and others are invited to express their comments on any phase of racing, boat improvement of racing rules. Write Starboard Tack, c/o RUDDER, 1515 Broadway, New York, N.Y. 10036.

WHERE IN THE WORLD WAS HE?

By William F. Presch

I

August was the month for island hopping. It was shirt-sleeve weather with the temperatures in the low 70s, and the southeast trades prevailed. Taking advantage of them, Captain Margo was enjoying the sail to his next port-of-call. Evening twilight of August 18th found him roughly halfway along his route and he unlimbered his sextant for some observations. With the moon high in the eastern sky and the brighter stars plainly visible, he obtained the following observations.

BODY	GMT (8-18-75)	Ho
Moon	14h 08m 32s	[illegible]
Acrux	14h 10m 12s	34° 18.9'
Arcturus	14h 11m 57s	42° 46.5'

Where in the world was he and with some 1701 miles to go on a course of 266° True, what island was his destination? Readers are invited to forward their solutions together with return address, to RUDDER, 1515 Broadway, New York, N.Y. 10036. The answer will appear in the September issue.

So left Captain Margo [illegible] Latitude 48°05' south Longitude 06°25' east en route to Port Mathurin, Rodrigues Island, Indian Ocean, for a solitary and a cramped self at [illegible] to the [illegible] of [illegible]

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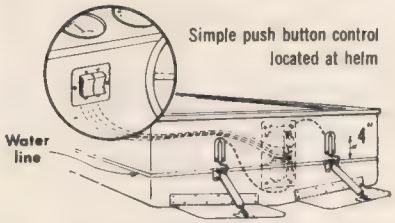

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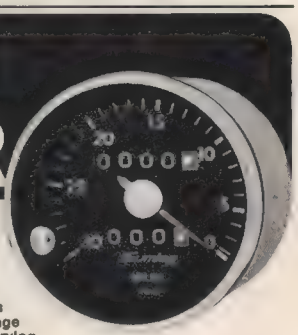

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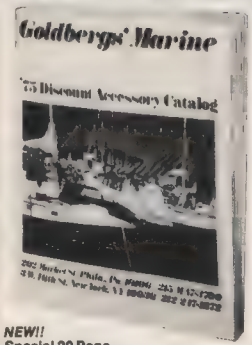

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Boats & Fishing

by Capt. Moss Bunker

Currents: The Ins and Outs

Last month the emphasis in this space was on the crucial role of tides in filling your boat's fish box. Currents are equally critical.

While tides move water vertically and currents horizontally, as far as fish (and fishermen) are concerned, the core issue is movement. As a rule, fish do not feed at stand or slack. For the boat angler, particularly in this day of high-cost fuels, knowing this is not only a time and energy saver, but also a money saver.

Before being swept up by technical jargon about currents, let's focus on the practical problem of fishing the current from a boat. Take, for example, a tidal current, the most common. With knowledge of when it is making up, its velocity hourly and the direction of its set, a skipper can pinpoint when is the ideal time to fish a rip—and when to avoid it.

At different stages of a tidal current, a rip may be comfortably and productively fished at anchor, by drifting across it or by trolling the edges. Obviously, the condition of the water is the governing factor. There is no sense in bottom fishing in a five-knot current. Figuratively, you would need a ton of lead to keep your lines down. Nor is drifting in such a current especially safe. On the other hand, trolling the rip at maximum flood or ebb may be seaworthy and productive.

By consulting tidal current *tables* and *charts* (note the distinction), you can select the best hours for a particular method of fishing.

Among some fishermen, including commercials, there is a strong notion that it is best to fish on the current's flood in spring and on the ebb in autumn. In northern waters, it is my own experience that this is a sound proposition. But there is no need to be dogmatic. In tropical and sub-tropical waters, the distinction between spring and fall is not nearly as sharp, and fish often feed heavily on the flood and the ebb alike if they are in a feeding mood. So the general rule is to fish one way and, failing in that, try the other. Experiment. The flood and ebb are influenced by many variables which you cannot find in tables and charts, such as wind and freshets.

Along our coastlines, three kinds of current challenge the angler who fishes from a boat: ocean currents, drift currents and the aforementioned tidal currents.

Among the ocean currents, the most famous is the Florida Current, better known as the Gulf Stream. Although this current flows steadily from Key Largo, Fla., to the Grand Banks, Newfoundland, and beyond, the best producing area for coastal sportfishermen is along the Florida coast from Key Largo to Jupiter Inlet.

The Gulf Stream is clearly visible, a deep indigo which is dotted with patches of free-floating yellow seaweed. It is warmer and has a higher salinity content than the green water through which it passes. Trollers for sail, marlin, Spanish mackerel and sundry other species have debated endlessly over the best way to troll the Stream. Some anglers troll north or south in a zigzag pattern along its clearly-defined edge. Others fish exclusively within the rich blue water. In truth, some days one method is superior to another. Like people, fish are finicky.

As for the drift current, which is essentially a current moved by the wind, the most important one in our waters is found along the northern shelf of the Gulf of Mexico. At times, this current is also clearly visible, alas—usually when it bears the Red Tide. Pushed by the wind, the Red Tide kills all forms of marine life in its path, including millions of sport fish. The Red Tide, so-called because the microorganisms which produce it turn the sea red, is peculiar to tropical water but not exclusively.

For the great majority of North American boat anglers, the most important tide is the tidal current, a current which bears a relationship to the state of the tide. However, its name notwithstanding, the relationship between a tide and a tidal current is not constant and the current's slack does not usually coincide with the time of high or low water. To fish these currents, hard information is an absolute must.

There are two primary sources of tidal current intelligence. One is the current table which gives, for both flood and ebb, the predicted time of slack water daily, the velocities of maximum current and the current's set. The other, less known but invaluable, is the current chart. These charts come as a set of twelve for each important tidal current along our coasts. They show the state of the current hour-by-hour as it passes through its twelve-hour flood and ebb cycle.

Additional information about tables and charts is available by writing the Director, National Ocean Survey, NOAA, Rockville, Md. 20852. Ask for Nautical Chart Catalog 1. It's free. Well, not really. Your taxes already paid for it.

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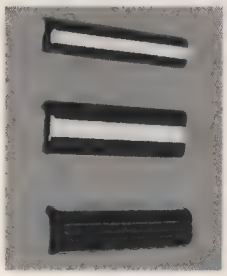

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Fiberglass Construction *continued from page 41*

be taken here. One of the best ways to check it is to extend the rudder line through what will be the deck line of the boat and then measure aft to the transom, comparing the figures against the lines drawing.

Using C-Flex, the molding of the transom is quite easy and radius pieces can be cut to produce the proper curve. These slip into the notched transom piece and are secured.

Later C-Flex will be laid on the hull and resin applied. After it hardens a carborundum wheel in a circular saw will quickly slice it to the shape of the hull line and the transom face will then be formed with more C-Flex, resined and trimmed. Bonding angles will be used to fair in and secure the corners. The stem area is formed in much the same way.

At this stage, the way the boat has been set up will serve for other methods of construction as well. With the C-Flex system, hat-shaped battens which measure ¾" by ¾" by 1" and which are ripped from 16 lengths of ¾" by 3½" by 16' select white pine will be laid on horizontally. These are butt-joined with a one-foot overlap piece and fair very well. The spacing of the battens or ribbands will vary between 8" and 12" depending upon the tightness of the curve, and on this boat will be glassed into the hull for additional rigidity. Over these longitudinal battens will be laid flat strips of ⅛" by 1½" by 12' mahogany (ripped from three lengths of 2' by 8' by 12' rough stock) on about 18" transverse centers and stapled or nailed. The C-Flex will then be laid over these strips longitudinally and stapled.

There are various alternatives for setting up the boat. Bulkheads could be incorporated at this early stage as well as other hull and deck components, but this particular hull will also serve as a prototype plug from which to take a female mold for subsequent production and the full use of the station frames will help insure fairness and exactness of the lines. In addition, I feel the initial setup should be kept as simple as possible. It is very difficult for an inexperienced builder to plan too far ahead and, with the hull laid up and turned, the bulkheads can be easily dropped in later with less chance for ballast interference or mistakes. The deck is easily built separately at floor level and can later be well secured to the hull by bonding and bolting, leaving the hull free initially for fitting out the interior.

Total time expended to the stage where the battens were ripped and applied was approximately 142 man-hours or approximately nine working days for two men. Some of this time was spent in tracking down equipment and tools. But all things considered it was a fast setup. As we proceed with the boat, a close check will continue to be kept on man-hours and materials.

TOOLS NEEDED FOR SETTING UP

Rasp	50' tape
Level	12' tape
Claw hammer	C-Flex batten
Large square	30-40 icepicks
Small square	Pencils
Handsaw	Metal yard stick
Two medium C-clamps	Sabre saw
Plumb bob	Circular saw
50' length of wire	

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Powerboat Racing

Unlimited Hydroplanes: Birth of a New Boardwalk

by Jim Wright

If unlimited hydroplane racing is but a high-stakes game of Monopoly, as some skeptics have suggested, the *Pay N Pak* and *Miss Budweiser* have been the Boardwalk and Park Place of the Thunderboats for the past two years. Of the 20 races run in 1973 and '74, those two hot properties won all but one. In the process, the pair placed first and second an incredible 82 percent of the time in the heats they entered.

Things had gotten so desperate for the other owners that they tried every exotic trick they could think of to break up the monopoly, stopping just short of voodoo incantations and the Sherman Anti-Trust Act. Nothing—neither turbines nor turbochargers—worked.

Making matters worse was the way the *Pak* and *Bud* teams seemed to minimize the human element: they replaced drivers as smoothly and successfully as they changed their V12 Rolls Royce Merlin engines. Take the *Pak*. First, newcomer Mickey Remund won four races and the '73 high-point championship in the winged hydro, then George Henley, a has-been with *Lincoln Thrift*, climbed into the same cockpit in '74 and won seven races and another crown. The *Pak's* apparent invincibility after those two tours de force prompted *Miss Valvoline* driver Tom Sheehy to remark, "Getting a ride with the *Pay N Pak* is like going to a pro-am golf tournament and getting paired with Johnny Miller."

Not so in 1975. If the first two races of this season served as any barometer, the *Pak/Bud* dynasty was fading into thin air. In the Miami opener, *Weisfield's*, an also-ran last year under the *Miss Valu-Mart* banner, swept all three of its heats handily, setting heat and lap speed records en route to an upset win. With Mickey Remund at her helm, *Miss Bud* could do no better than third overall, and *Pay N Pak*, driven by Kentuckian Jim McCormick, came in dead last after failing to even qualify for the final heat. The *Pak* camp officially attributed the poor showing to steering problems, but insiders blamed McCormick's inability to squeeze top performance out of the Ron Jones hull. No one was calling *Weisfield's* win a fluke.

Despite 40 hours of testing before the next race in Washington, D.C., the *Pak* continued her slow skid. In a practice session on the Potomac River the Thursday before the President's Cup, the *Pak's* wing tore off at 100 mph. No hull damage or injuries, but the loss of the hydro's trademark—as psychologically devastating as Liberace being stripped of his sequins—was symptomatic of the gremlins and sagging confidence that caused the *Pak's* rapid descent into mediocrity.

That weekend, *Weisfield's* jockey Billy Schumacher once again proved why his boat was heir to the *Pak* fortunes, winning half of the four heats. He literally won a third heat by a mile, only to be penalized a lap on a disputable call by the chief referee. It gave the President's Cup to *Miss Budweiser*, while McCormick got third place overall and, three days later, his walking papers.

Small wonder, then, that a strange blend of mild euphoria and migraine hung over the President's Cup pit area. The drivers and owners of the also-rans didn't know how to react to *Weisfield's* emergence as world-beater: whether to cheer because somebody had finally shown that the *Pak* and the *Bud* could be beaten, or to bemoan the fact the duo had a new neighbor on their end of the block.

At least one official was prone toward optimism: "Somebody's finally busting up the old monopoly, and that's great for unlimited racing. When one or two boats dominate a class, it starts to go downhill. People thinking about getting into the sport are hesitant. They say, 'Why bother? Those guys got it all locked up.' Then the class has a breakthrough—someone comes in with a different engine or hull concept—and that generates new interest from sponsors, owners and fans."

What depressed most owners was the notion that *Weisfield's* hadn't shattered any two-boat syndicate. If *Pay N Pak* eventually reverted to last year's form, *Weisfield's* would create a three-boat cartel. They were also aware that the new leader hadn't come up with any startling hull or power plant—it was no coincidence that the orange and white hydro was created by the father of the *Pak* and *Bud*, Ron Jones. Or that all three hydros were using 2800 hp Rolls Royces for power.

Taking over: *Schumacher and* Weisfield's *led from the start in the third heat of the President's Cup in Washington, D.C.*

When Leslie Rosenberg, the 34-year-old owner of *Weisfield's* (he named the boat after his national chain of jewelry stores), decided to field an unlimited for the 1974 campaign, he took one glance at the 1973 results and figured the surest way to beat the two leaders was to emulate them. By the end of last year he had accumulated the ingredients necessary for a run at the championship: Ron Jones picklefork, Rolls engine, a veteran team manager (Jerry Zubich) and crew, and Billy Schumacher, one of the best drivers in all of boat racing.

Schumacher, two-time national champ in *Miss Bardahl* and holder of 12 world speed records in racing craft from outboards to unlimiteds, was the natural choice to pilot *Weisfield's*. Once dubbed "Billy the Kid" since he started winning boat races in an outboard utility at age 8, Schumacher was now 32, wizened and still very much the outlaw. He had quit unlimited racing four years ago in a huff, protesting the hazardous, debris-strewn waters he and the other drivers were forced to run in.

Coaxed back into racing last August by Rosenberg, Schumacher retained the moxie, the quiet confidence soon to become the escutcheon of the entire *Weisfield's* team. One episode at the President's Cup was indicative of the hydro's cocksure assault on the national championship. Schumacher, when he learned that he had been penalized a lap for driving too aggressively at the start of that one crucial heat, strode over to the driver's rep, planted his six-foot-two frame, folded his arms and demanded icily, "Please tell what I did wrong." The reply, far from satisfactory, was something to the effect that it didn't matter ultimately because the chief referee's decision was final.

No whining, no bickering, no formal protest. Schumacher simply climbed into *Weisfield's* for the final heat and hit the starting line with the exact same tactics and determination he had been penalized for hours earlier. He set a new heat record at 112 mph, won by two miles this time, and nobody said a word. The Boardwalk had a new tenant.

Trawler Update *continued from page 26*

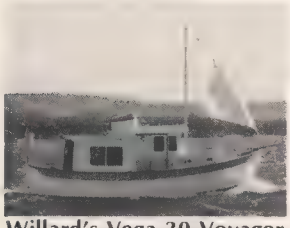
and reprinted from a 1925 issue of RUDDER, is actually closer to the original "trawler yacht" concept than most of its descendants, with three steadying sails, deckhouse, single gasoline engine and a top speed of 10 knots.

These days, steadying sails have been downplayed in favor of more stable hulls, roomier accommodations and flying bridges; the single engine has usually given way to the dependability of twin screws (often diesel); and range has been sacrificed for higher speeds. The end result has proved quite successful, as evidenced by the popularity of the boats from Pearson, Passagemaker and American Marine as well as the new models entered in the '75 sweepstakes: a 58-footer from Willard Boat Works, three redesigned Gulfstars, the 37-foot Pacific trawler, the revamped 48-foot Meridian, a 48-foot Marine Trader and a new design for a 40-foot trawler yacht from Jim Wynne and Fred Hudson. And the list goes on.

Pacific Trawler 37

There's one small problem. A lot of boating folk—particularly old-line designers—take umbrage at some of the manufacturers' slick approach to marketing these oft-boxy boats as *de facto* descendants of the stout fishing craft they're named for. According to the detractors, in many cases this is comparable to Pontiac calling one of its huge sedans a Grand Prix.

Designer Robert Beebe, who has done more than anyone else to debunk the "trawler" myth, writes in his book on the seagoing motorboat, *Voyaging Under Power* ($12.50 from the Seven Seas Press and the definitive work on the subject): "There is nothing wrong with these [trawler] yachts if they meet your needs. But just because they are called 'trawlers,' don't imagine that the seaworthiness of the true trawler has rubbed off on them."



Willard's Vega 30 Voyager

The subject is a touchy one. Deep-V specialist Jim Wynne, who's designed three trawler hulls from 40 to 48 feet that are capable of planing speeds, defends the label. "I agree that the term is misused somewhat," says Wynne, "but fifty of our forty-eight-footers have been sold to commercial fishermen who use them as trawlers. What else are we supposed to call the boats?"

One thing is certain—"trawler yacht" has become a catch-all category for any cruising powerboat with a large pilothouse, a steadying sail or a touch of tugboat, with too-little distinction afforded a 15,000-pound 30-footer and a 58,500-pound 53-footer in terms of labels despite the efforts by such manufacturers as Hatteras and American Marine (the Alaskan series) to call their boats anything *but* trawlers.

In the end, most people will put the whole lot of them under the heading of trawler yachts. Like it or not, the catch phrase has become too firmly entrenched in the cruising man's vocabulary to promulgate a new, more-appropriate term now. Semantics aside, boatmen aren't buying trawlers on account of their name; they decide their requirements and shop for the boat that best meets them. And if they're looking for a genuine long-distance powerboat and they're smart, they read Beebe's *Voyaging Under Power* first. —*J. W.*

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Blue Water Sailor

by Tom Colvin

SEAMAN'S LORE ABOUT THE WEATHER: III

Frequently, the traditional red sky can be in the form of a rainbow which is produced by refraction of the sun's rays being bent by raindrops. The center of the bow is opposite the sun. Close up, there are many colors of the spectrum, but as the distance increases, more colors are lost, finally leaving only red.

In the summertime, rain is usually accompanied by thunder. There are only general guidelines for forecasting thunderstorms in a particular locality. For example, on the East Coast of the United States, thunderstorms are usually from a westerly direction. Surface winds alone give no indication of their approach; however, a few hours' warning is indicated by the movement and form of the clouds. The summertime thunderstorm which does not depress the barometer will be quite local and of no great importance. With a high barometer, only a rare storm will occur, for storms are most common when the barometer is low. A scorching sun breaking through the morning clouds is the earliest indication possible and is surely followed by an afternoon thunderstorm.

Dew is an indication of fine weather. In hot weather, a lack of dew foretells rain, while a heavy dew indicates a continuation of fair weather. Fog indicates fair weather and is usually caused by warm, moist air passing over cooler water.

The moon is one of the best weather sentinels. A halo or ring is usually caused by water mist or ice crystals in the upper atmosphere, and it indicates that bad weather is in the offing, probably within twenty-four hours. When the moon is seen quite clearly in the daytime, fair and cooler weather follows.

Clouds have always been thought of as storm signals. One must remember, however, that the movement of clouds in one area foretells storms, while the same movement in another area indicates fair weather. After a period of fine weather, the sky will begin to change in a rather constant pattern. The first changes are light streaks, curls and wisps or patches of white clouds. This is followed by increasing overcast vapor that develops into clouds, indicating that wind or rain is in the offing.

Clouds prevent and contain the radiation from the earth. A clear sky foretells the minimum night temperature. When clouds form over air saturated with moisture, the clouds unite and the moisture descends through the moist air below to fall as rain. The higher the cloud, the larger the raindrops. When high upper clouds move in a different direction from that of the lower clouds, the change of wind will be towards the upper direction.

Light scud clouds rapidly moving across heavy clouds indicate wind and rain, but when seen alone they usually indicate only wind. Misty clouds that increase in size or are descending foretell rain and wind, but if they are rising or dissipate, the weather will improve or become fine. Fine weather is indicated by soft, ill-defined clouds. The softer the appearance, the less wind to be expected; however, the hard, rolled, finger-like and ragged clouds warn of strong winds.

Clouds of unusual hues with sharp-distinct outlines foretell rain accompanied by strong winds, while hard-edged, oily-looking clouds foretell wind.

There are many methods of classifying clouds into a total descriptive picture. These are detailed in Bowditch, but for general purposes of weather forecasting, it is essential to remember only the principal types and combine them for more precision.

The cirrus clouds are the most elevated and are thin, drawn-out, hair-like or fleecy patches, known at sea as "cats' tails" and on land as "mares' tails." They are high-speed clouds. In the summer, their average speed is about 65 mph, increasing to about 80 mph in the winter. The speed of these clouds has been known to exceed 200 mph.

The cumulus clouds are hemispherically shaped on top and flat below. They pile up on each other, often indicating rain and thunder with gusty winds. These are medium-speed clouds, moving at about 35 mph in the summer and 50 mph in the winter.

The stratus clouds are layered or banded horizontally and are slow, moving at about 15 mph in the summer and 25 mph in the winter.

The nimbus clouds are gray and quite uniform in color, with ragged edges. These are the rain clouds and cover the sky during the rainy season.

The cirro-stratus clouds are the cirrus clouds coalescing in long strata, sometimes covering the sky completely.

The cirro-cumulus clouds are also high clouds and cause what is termed "a mackeral sky." They portend fair weather; however, they thicken and lower when preceding a storm.

The cumulo-stratus clouds, between the cumulus and stratus, are usually of black or blue-black tint at the horizon.

The ditty for all of this is:

Mackeral sky
Twelve hours dry;
The higher the clouds
The finer the weather;
When clouds appear like rocks and towers
The earth's refreshed by frequent showers.

Of all natural weather phenomena, I suppose thunder and lightning are most feared. Thunderclaps, because of their abruptness, are often startling. Understanding the cause often lessens the dread of these storms. Lightning is an instant discharge and, as it travels through the upper to lower strata clouds, it rolls. The thunder is almost instantaneous with the lightning due to the difference between the speed of light and the speed of sound. There is an apparent lag, which is useful in calculating the distance from the lightning. The rule of thumb is one mile for each five seconds of difference. When lightning flashes are seen but no thunder is heard, the distance to the lightning is more than 15 miles.

There are many types of lightning, and they are classified as follows: Heat lightning occurs below the horizon with flashes illuminating the upper strata clouds and which are too far away for thunder to be heard. Streak lightning is a broad smooth streak or flash. Beaded lightning is a series of bright beads along streak lightning. Sinuous lightning is a flash following a general direction. Ramified lightning (alsc called "forked") occurs when part of the flash branches off from the main stem of the flash. Ball lightning wanders about without a definite course and forms irregular loops.

Mr. Colvin will continue his discussion of weather next month.

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(D) Aqua Meter's new **Saturn No. 144** has the accuracy of big, pedestal-mounted binnacle compasses, according to the manufacturer, yet it sits only 2½ inches high. It's ideal for low-profile mounting forward of the wheel, deck or cockpit bridge in sailboats. $63.50. Aqua Meter Instrument Corp., 465 Eagle Rock Ave., Roseland, N.J. 07068. (Product Information Number 102)

(E) This new **Sterndrive Shaft Extension Kit** (No. 810404) is made specifically for applications in which the preferred location of the driving engine may be considerably forward of its normal stern position. This is the case with the increasingly popular small-boat diesel, for a forward location is often necessary to keep the design balance of the craft. Complete descriptive information on the kit is available. Marine Drive Systems, 519 Raritan Center, Edison, N.J. 08817. (Product Information Number 103)

(F) This new line of **instrument control panels** for inboard or outdrive boats uses Stewart-Warner instrumentation and optional wiring harnesses. They'll give you all the necessary readouts and are made of laminated plastic in a wide range of colors and finishes. Buck-Algonquin also offers circuit breaker and switch panels in this line, with custom panels available. Buck-Algonquin, Second St. and Columbia Ave., Philadelphia, Pa. 19122. (Product Information Number 104)

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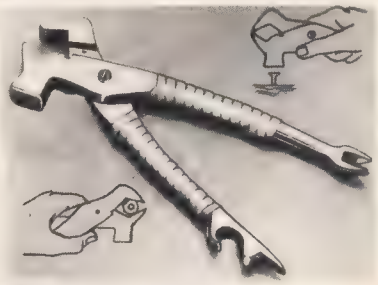

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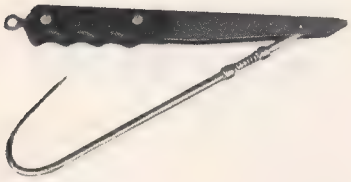

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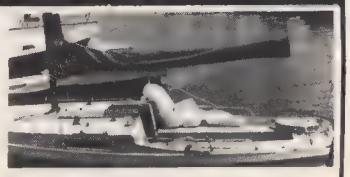

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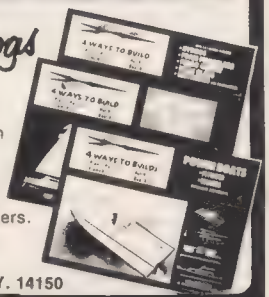

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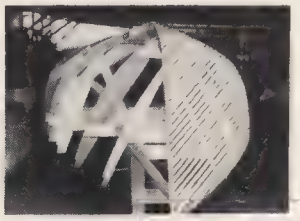

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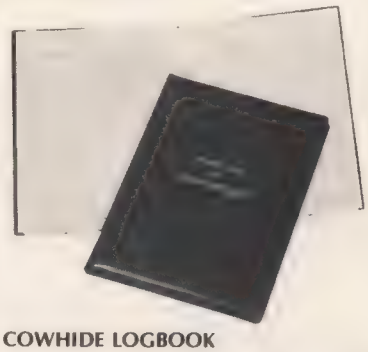

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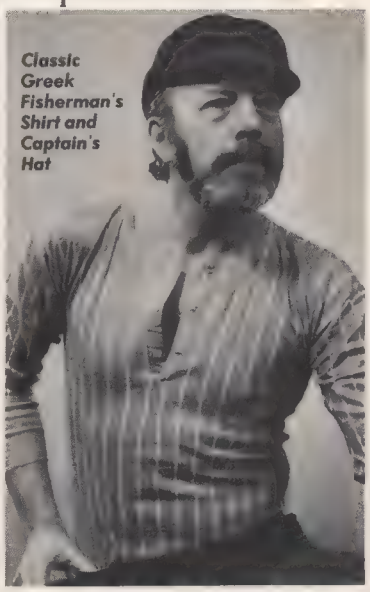

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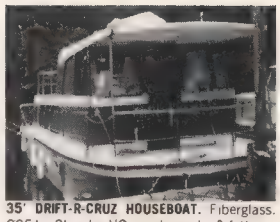

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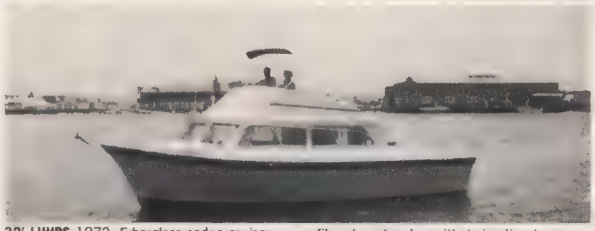

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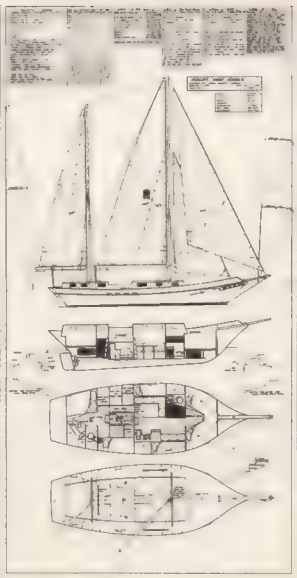

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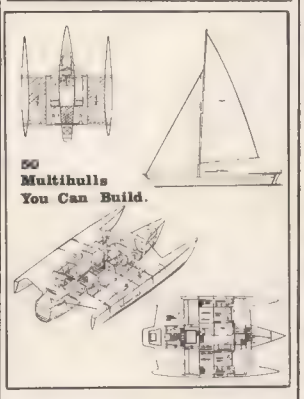

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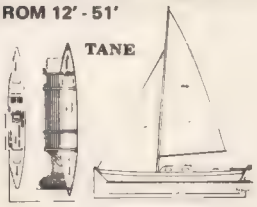

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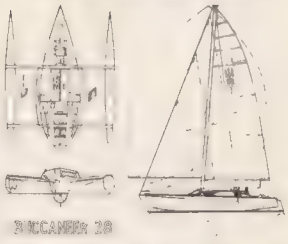

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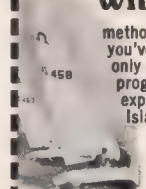

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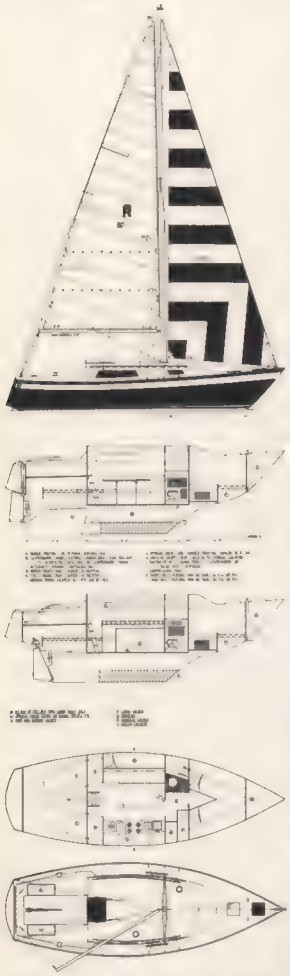

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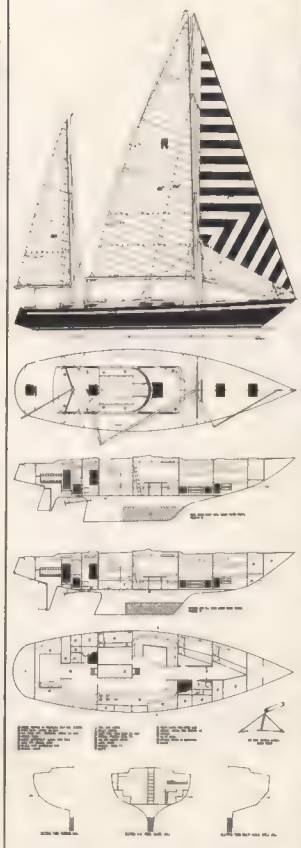

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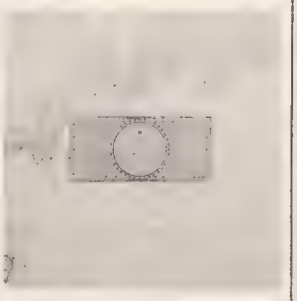

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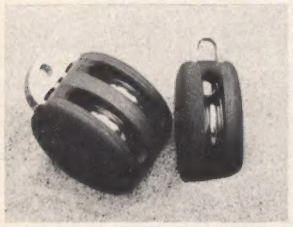

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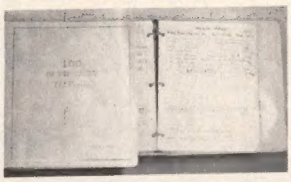

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